SUPERO®

SUPERO® X7DWU

USER'S MANUAL

Revision 1.0c

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Preface

About This Manual

This manual is written for system integrators, PC technicians and knowledgeable PC users. It provides information for the installation and use of the SUPER® X7DWU motherboard. The SUPER® X7DWU supports dual Intel® Quad-Core/Dual-Core Xeon™ 5400 Series/5300LV Series/5200 Series/5100LV Series processors with a front side bus speed of up to 1.60 GHz. With two 64-bit Quad-Core or Dual-Core processors built-in, the X7DWU offers substantial functionality enhancements to the motherboards based on the Intel Core Microarchitecture core while remaining compatible with the IA-32 software. The X7DWU supports Intel Virtualization Technology, Enhanced Intel SpeedStep technology, Advanced Dynamic Execution, and Streaming SIMD Extensions 4.1 (SSE4.1). These features allow the motherboard to operate at much higher speeds with better power management in much safer thermal environments than the traditional motherboards. The X7DWU is ideal for high performance workstation and enterprise server environments. Please refer to our web site (http://www.supermicro.com/products/) for updates on supported processors. This product is intended to be installed and serviced by professional technicians.

Manual Organization

Chapter 1 describes the features, specifications and performance of the main board and provides detailed information about the chipset.

Chapter 2 provides hardware installation instructions. Read this chapter when installing the processor, memory modules and other hardware components into the system. If you encounter any problems, see **Chapter 3**, which describes troubleshooting procedures for video, memory and system setup stored in the CMOS.

Chapter 4 includes an introduction to BIOS and provides detailed information on running the CMOS Setup utility.

Appendix A provides BIOS POST Error Codes. **Appendix B, Appendix C and Appendix D** list HostRAID Setup Guidelines and Other Software Program/Driver Installation Instructions.

Conventions Used in the Manual:

Special attention should be given to the following symbols for proper installation and to prevent damage done to the components or injury to yourself:

Warning: Important information given to ensure proper system installation or to prevent damage to the components.

Note: Additional Information given to ensure correct system setup.

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Chapter 1

Introduction

1-1 Overview

Checklist

Congratulations on purchasing your computer motherboard from an acknowledged leader in the industry. Supermicro boards are designed with the utmost attention to detail to provide you with the highest standards in quality and performance. Check that the following items have all been included with your motherboard. If anything listed here is damaged or missing, contact your retailer.

All the following items are included in the retail box.

- One (1) Supermicro Mainboard
- One (1) ribbon cable for IDE devices (CBL-036L-03)
- Six (6) SATA cables (CBL-044)
- Backplate (CSE-PT07L)
- One (1) Supermicro CD containing drivers and utilities
- One (1) User's/BIOS Manual

Contacting Supermicro

Headquarters

Address:	Super Micro Computer, Inc.
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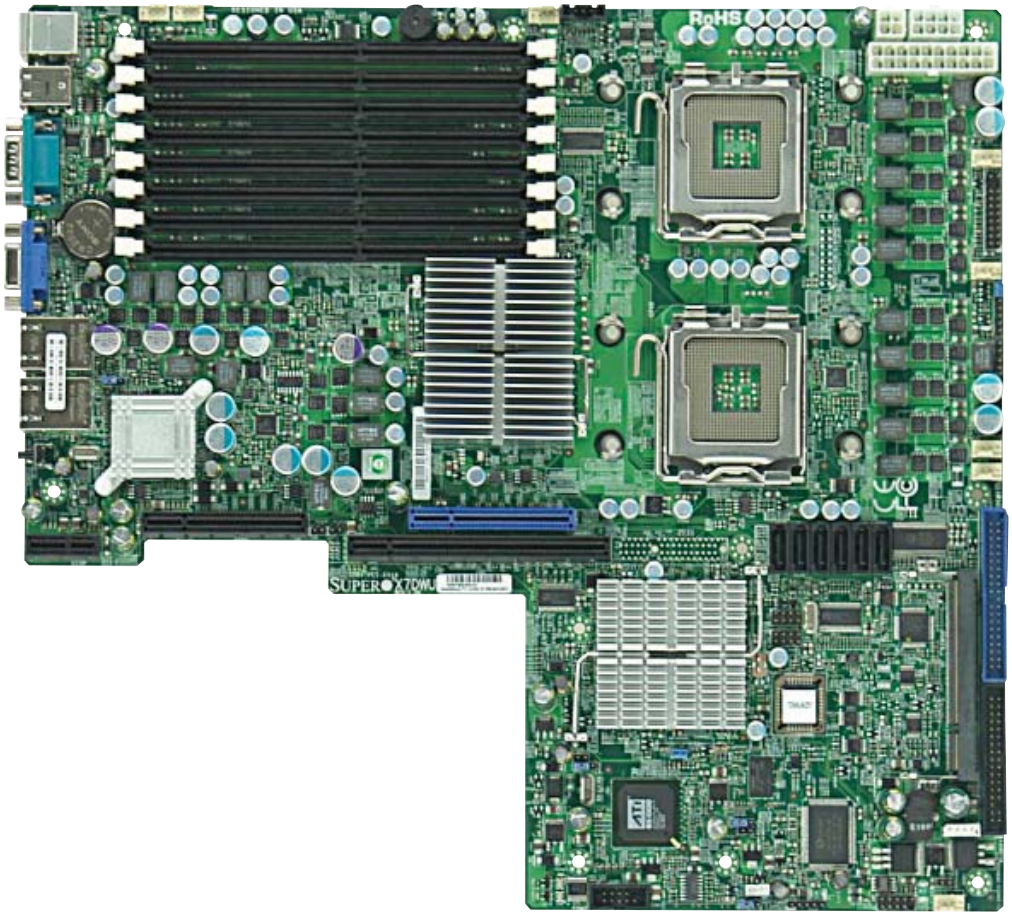
Technical Support:	
Email:	support@supermicro.com.tw
Tel:	886-2-8228-1366, ext.132 or 139

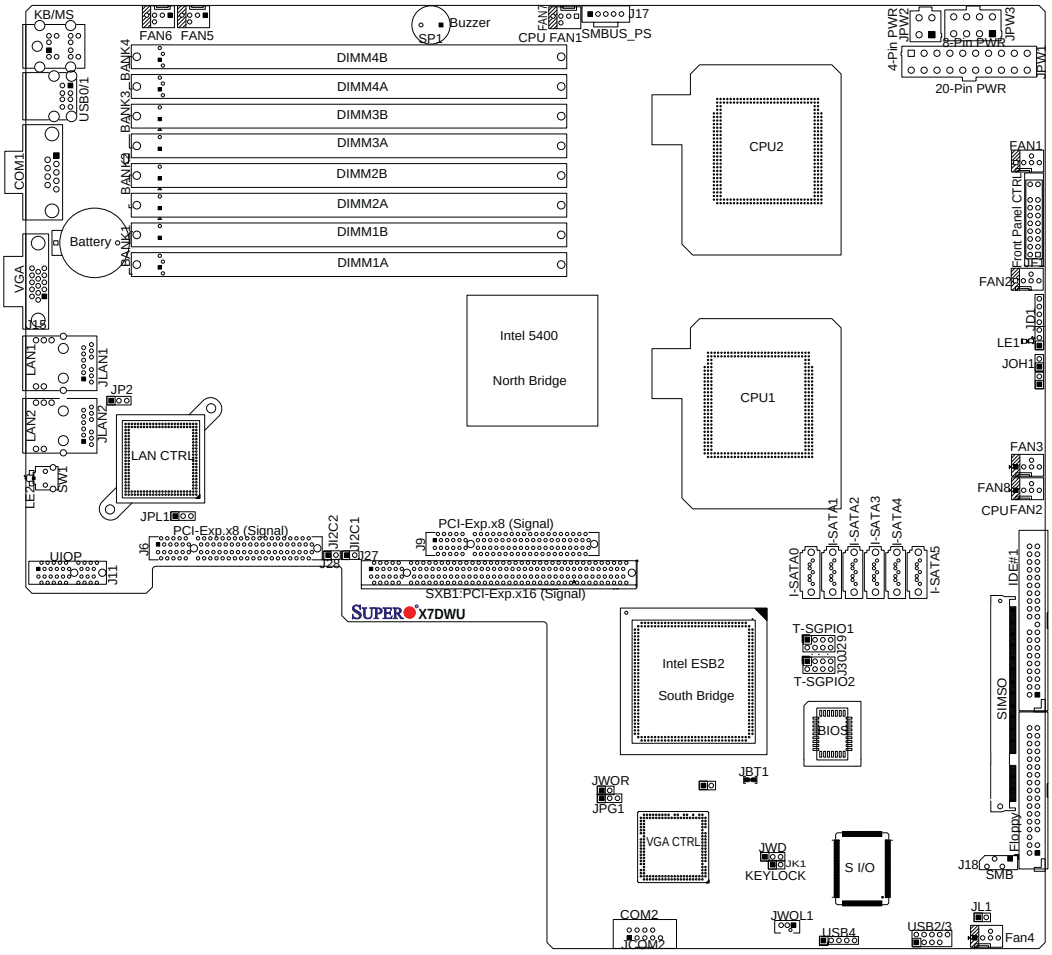
SUPER® X7DWU Image



Note: The drawings and pictures shown in this manual were based on the latest PCB revision available at the time of publishing of the manual. The motherboard you've received may or may not look exactly the same as the graphics shown in the manual.

SUPERO X7DWU Motherboard Layout

(not drawn to scale)



Notes:

1. Jumpers not indicated are for test purposes only.
2. See Chapter 2 for detailed information on jumpers, I/O ports and JF1 front panel connections.
3. "■" and "◣" indicate Pin 1 locations.
4. When LE1 is on, make sure to remove the power cable before removing or installing components.

X7DWU Quick Reference

Jumper	Description	Default Setting
JBT1	CMOS Clear	(See Section 5-10)
JI²C1/JI²C2	I²C to PCI/PCI-X Slots	Open (Disabled)
JP2	Memory Voltage Select	Pins 1-2 (Auto)
JPG1	VGA Enable/Disable	Pins 1-2 (Enabled)
JPL1	LAN1/2 Enable/Disable	Pins 1-2 (Enabled)
JWD	Watch Dog	Pins 1-2 (Reset)

Connector	Description
COM1/COM2	COM1 Serial Port/COM2 Header
FAN 1-8	Chassis/CPU Fan Headers
Floppy	Floppy Disk Drive Connector
IDE1	IDE Drive Connector
I-SATA0 ~ I-SATA5	SATA Ports #0~#5
JD1	Onboard Speaker/Power LED
JF1	Front Panel Control Connector
JK1	Keylock Header
JL1	Chassis Intrusion Header
JOH1	Overheat Warning Header
JPW1	20-pin ATX Power Connector
JPW2/JPW3	+12V 4-Pin/+12V 8-pin Power Connectors
JWOL1	Wake-On-LAN Header
JWOR	Wake-On-Ring Header
LAN1/2	Gigabit Ethernet (RJ45) Ports
SIMSO	SIMSO IPMI (Remote Management) Slot
SMB	System Management Bus Header (J18)
SMB_PS	SMBus I²C Connector (J17)
T-SGPIO-1/2	Serial General Purpose Input/Output Headers
USB 0/1,USB 2/3,4	Universal Serial Bus (USB) Ports, Headers
UIOP	Universal IO Riser Card Power Connector (J11)
VGA	Video Port

LED Indicator	Description
LE1	Power LED
LE2	Unit Identification (UID) LED Indicator

Motherboard Features

CPU

- Dual Intel® Quad-Core/Dual-Core Xeon™ 5400 Series/5300LV Series/5200 Series/5100LV Series processors with a front side bus speed of up to 1.60 GHz

Memory

- Eight 240-pin DIMM sockets with support up to 64 GB DDR2 Fully Buffered (FBD) ECC 800/667/533 Memory (See Section 2-3 in Chapter 2 for DIMM Slot Population.)

Chipset

- Intel 5400 chipset, including: the 5400 Memory Control Hub (MCH) and the ESB2 South Bridge

Expansion Slots

- One PCI-Exp. x16 (Signal) slot (SXB1)
- Two PCI-Exp. x8 (Signal) slots (J6/J9)
- One SIMSO IPMI Slot

BIOS

- 8 Mb Phoenix® Flash ROM
- DMI 2.3, PCI 2.2, ACPI 1.0/2.0, Plug and Play (PnP), USB Keyboard support, and SMBIOS 2.3

PC Health Monitoring

- Onboard voltage monitors for CPU core voltage, Memory voltage, Chipset, +1.8V, +3.3V, +5V, +12V, –12V, +3.3V standby, +5V standby and VBAT)
- Fan status monitor with firmware control
- CPU/chassis temperature monitors
- Low noise fan speed control
- CPU fan auto-off in sleep mode
- Pulse Width Modulation (PWM) fan control
- I^2C temperature sensing logic
- Thermal Monitor 2 (TM2) support
- CPU slow-down on temperature overheat
- CPU thermal trip support for processor protection
- Power-up mode control for recovery from AC power loss
- Chassis intrusion detection
- System resource alert via Supero Doctor III

ACPI Features

- Slow blinking LED for suspend state indicator
- Main switch override mechanism
- ACPI Power Management
- Power-on mode for power recovery

Onboard I/O

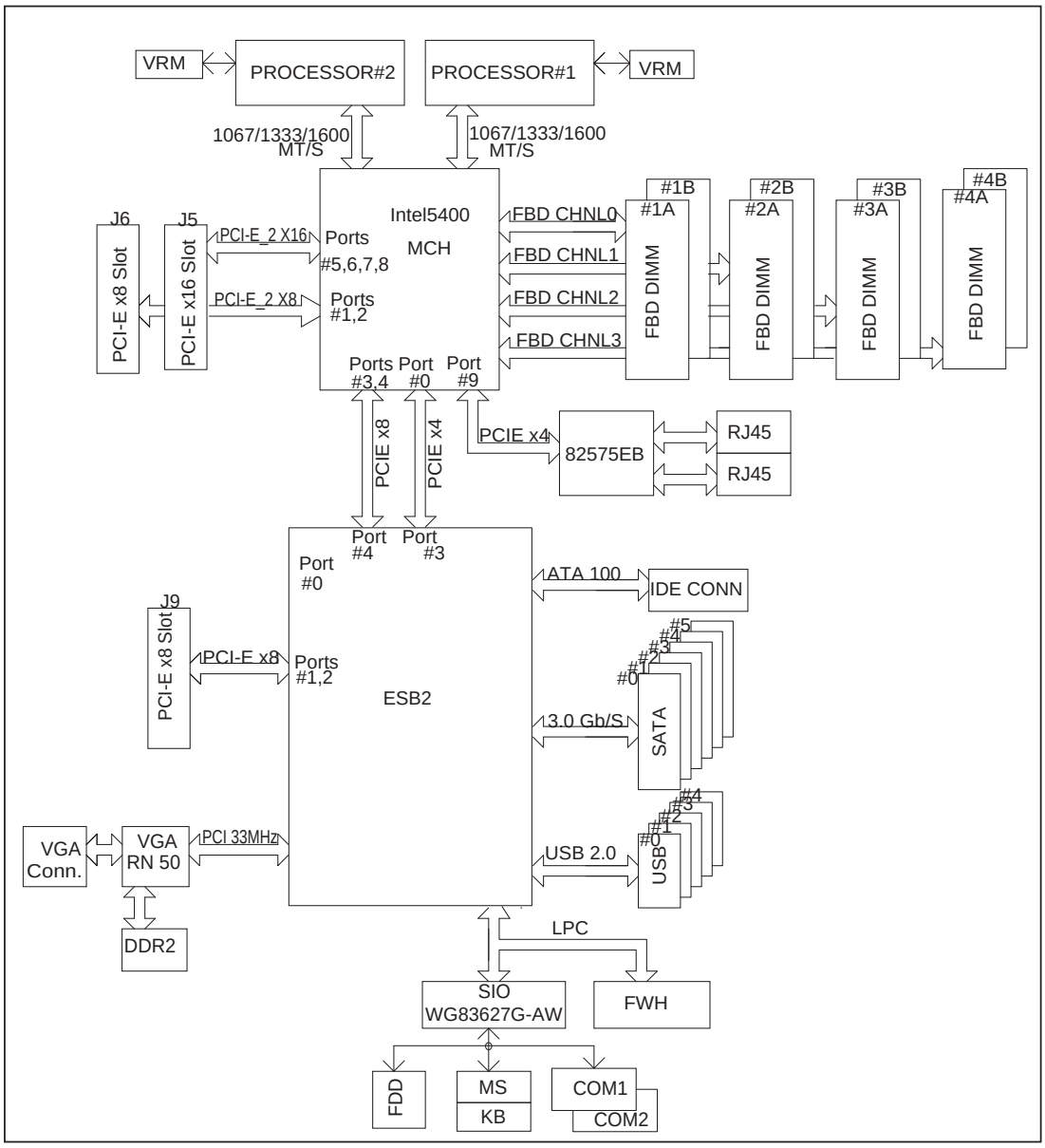
- Six SATA ports (supporting RAID0, 1, 10 and 5 in the Windows OS environment)
- One SIMSO IPMI socket
- One Intel 82575EB LAN chip supports two Giga-bit LAN ports with IOAT
- One EIDE Ultra DMA/100 bus master interface
- One floppy port interface
- Two COM ports(1 header, 1 port)
- Up to five USB 2.0 (Universal Serial Bus) (two ports, three headers)
- Super I/O: Winbond WG83627G-AW

Other

- External modem ring-on
- Wake-on-LAN (WOL)
- Wake-on-Ring (WOR)
- Console redirection
- Onboard Fan Speed Control by Thermal Management via BIOS
- CD/Diskette Utilities
- BIOS flash upgrade utility and device drivers

Dimensions

- Extended ATX 13.05" (L) x 12.075" (W) (331.47 mm x 306.71 mm)



System Block Diagram for the X7DWU

Note: This is a general chipset block diagram. Please see the previous Motherboard Features pages for details on the features of each motherboard.

1-2 Chipset Overview

Built upon the functionality and the capability of the 5400 chipset, the X7DWU motherboard provides the performance and feature set required for quad-processor or dual-processor-based high-end systems with configuration options optimized for complex storage platforms. The 5400 chipset supports single or dual Intel Quad-Core/Dual-Core Xeon 5400 Series/5300LV Series/5200 Series/5100LV Series processor with front side bus speeds of up to 1.6 GHz. The chipset consists of the 5400 Memory Controller Hub (MCH) for the host bridge and the 631xESB/632xESB I/O Controller Hub (Enterprise South Bridge 2-ESB2) for the I/O subsystem.

The Intel 5400 MCH (North Bridge)

The 5400 MCH (North Bridge) provides two FSB processing interfaces, four fully buffered (FBD) DIMM memory channels, PCI-Express bus interfaces configurable to form x8 or x16 ports, an EB2 South Bridge Interface (ESI) and SMBus Interfaces for system management, and DIMM Serial Presence Detect (SPD). The peak bandwidth for each FBD channel is 8 GB/s for DDR2 800/667/533 FBD memory. The PCI-Express interfaces can be configured to form x8 or x16 ports that can operate up to Gen-2 speeds in x16 configuration for enhanced graphics applications.

The Intel 631x/632x ESB I/O Controller Hub-ESB2 (South Bridge)

The 631xESB/632xESB I/O Controller Hub (Enterprise South Bridge 2) integrates an Ultra ATA 100 Controller, six Serial ATA host controller ports, one EHCI host controller, five external USB 2.0 ports, an LPC interface controller, and a flash BIOS interface controller. Additionally, the ESB 2 chip also contains a PCI interface controller, integrated LAN controller, an ASF controller and an ESI for communication with the MCH. The Intel ESB2 offers the data buffering and interface arbitration capabilities required for a high-end system to constantly operate efficiently and maintain peak performance.

Compliant with the ACPI platform, the ESB2 supports the Full-On, Stop-Grant, Suspend-to-RAM, Suspend-to-Disk, and Soft-Off power management states. Combined with the functionality offered by the onboard LAN controller, the ESB2 also supports alert systems for remote management.

With the 5400 chipset built in, the X7DWU offers a superb solution for intense computing and complex I/O environments, and is ideal for high-end server systems.

1-3 Special Features

Recovery from AC Power Loss

BIOS provides a setting for you to determine how the system will respond when AC power is lost and then restored to the system. You can choose for the system to remain powered off (in which case you must hit the power switch to turn it back on) or for it to automatically return to a power- on state. See the Power Lost Control setting in the Advanced BIOS Setup section to change this setting. The default setting is Last State.

1-4 PC Health Monitoring

This section describes the PC health monitoring features of the X7DWU. All have an onboard System Hardware Monitor chip that supports PC health monitoring.

Onboard Voltage Monitors

An onboard voltage monitor will scan CPU Cores, Chipset Voltage, +1.8V, +3.3V, +5V, +12V, -12V, +3.3V Standby, +5V Standby and VBAT continuously. Once a voltage becomes unstable, a warning is given or an error message is sent to the screen. Users can adjust the voltage thresholds to define the sensitivity of the voltage monitor.

Fan Status Monitor with Firmware Control

The PC health monitor can check the RPM status of the cooling fans. The onboard CPU and chassis fans are controlled by Thermal Management via BIOS (under Hardware Monitoring in the Advanced Setting).

Environmental Temperature Control

The thermal control sensor monitors the CPU temperature in real time and will turn on the thermal control fan whenever the CPU temperature exceeds a user-defined threshold. The overheat circuitry runs independently from the CPU. Once it detects that the CPU temperature is too high, it will automatically turn on the thermal fan control to prevent any overheat damage to the CPU. The onboard chassis thermal circuitry can monitor the overall system temperature and alert users when the chassis temperature is too high.

System Resource Alert

This feature is available when used with Supero Doctor III in the Windows OS environment or used with Supero Doctor II in Linux. Supero Doctor is used to notify the user of certain system events. For example, if the system is running low on virtual memory and there is insufficient hard drive space for saving the data, you can be alerted of the potential problem. You can also configure Supero Doctor to provide you with warnings when the system temperature goes beyond a pre-defined range.

1-5 ACPI Features

ACPI stands for Advanced Configuration and Power Interface. The ACPI specification defines a flexible and abstract hardware interface that provides a standard way to integrate power management features throughout a PC system, including its hardware, operating system and application software. This enables the system to automatically turn on and off peripherals such as CD-ROMs, network cards, hard disk drives and printers. This also includes consumer devices connected to the PC such as VCRs, TVs, telephones and stereos.

In addition to enabling operating system-directed power management, ACPI provides a generic system event mechanism for Plug and Play and an operating system-independent interface for configuration control. ACPI leverages the Plug and Play BIOS data structures while providing a processor architecture-independent implementation that is compatible with Windows 2000, Windows XP and Windows 2003 Servers.

Slow Blinking LED for Suspend-State Indicator

When the CPU goes into a suspend state, the chassis power LED will start blinking to indicate that the CPU is in suspend mode. When the user presses any key, the CPU will wake-up and the LED will automatically stop blinking and remain on.

Main Switch Override Mechanism

When an ATX power supply is used, the power button can function as a system suspend button to make the system enter a SoftOff state. The monitor will be suspended and the hard drive will spin down. Pressing the power button again will cause the whole system to wake-up. During the SoftOff state, the ATX power supply provides power to keep the required circuitry in the system alive. In case the system malfunctions and you want to turn off the power, just press and hold the power button for 4 seconds. This option can be set in the Power section of the BIOS Setup routine.

External Modem Ring-On

Wake-up events can be triggered by a device such as the external modem ringing when the system is in the Standby or Off state. The external modem ring-on can only be used with an ATX 2.01 (or above) compliant power supply.

Wake-On-LAN is defined as the ability of a management application to remotely power up a computer that is powered off. Remote PC setup, up-dates and asset tracking can occur after hours and on weekends so that daily LAN traffic is kept to a minimum and users are not interrupted. The motherboard has a 3-pin header (WOL) to connect to the 3-pin header on a Network Interface Card (NIC) that has WOL capability. In addition, an onboard LAN controller can also support WOL without any connection to the WOL header. The 3-pin WOL header is to be used with a LAN add-on card only.

Note: Wake-On-LAN requires an ATX 2.01 (or above) compliant power supply.

1-6 Power Supply

As with all computer products, a stable power source is necessary for proper and reliable operation. It is even more important for processors that have high CPU clock rates.

The X7DCA-3/X7DCA-i can only accommodate 24-pin ATX power supply. Although most power supplies generally meet the specifications required by the motherboard, some are inadequate. You should use one that will supply at least 400W of power. In addition, the 12V 8-pin is also required for adequate power supply to the CPU. Also your power supply must supply 1.5A for the Ethernet ports.

It is strongly recommended that you use a high quality power supply that meets ATX power supply Specification 2.02 or above. It must also be SSI compliant (info at http://www.ssiforum.org/). Additionally, in areas where noisy power transmission is present, you may choose to install a line filter to shield the computer from noise. It is recommended that you also install a power surge protector to help avoid problems caused by power surges.

1-7 Super I/O

The disk drive adapter functions of the Super I/O chip include a floppy disk drive controller that is compatible with industry standard 82077/765, a data separator, write pre-compensation circuitry, decode logic, data rate selection, a clock generator, drive interface control logic and interrupt and DMA logic. The wide range of functions integrated onto the Super I/O greatly reduces the number of components required for interfacing with floppy disk drives. The Super I/O supports 360 K, 720 K, 1.2 M, 1.44 M or 2.88 M disk drives and data transfer rates of 250 Kb/s, 500 Kb/s or

1 Mb/s. It also provides two high-speed, 16550 compatible serial communication ports (UARTs). Both UARTs provide legacy speed with baud rate of up to 115.2 Kbps as well as an advanced speed with baud rates of 250 K, 500 K, or 1 Mb/s, which support higher speed modems.

The Super I/O supports one PC-compatible printer port (SPP), Bi-directional Printer Port (BPP) , Enhanced Parallel Port (EPP) or Extended Capabilities Port (ECP).

The Super I/O provides functions that comply with ACPI (Advanced Configuration and Power Interface), which includes support of legacy and ACPI power management through an SMI or SCI function pin. It also features auto power management to reduce power consumption.

Notes

Chapter 2

Installation

2-1 Static-Sensitive Devices

Electrostatic-Discharge (ESD) can damage electronic components. To prevent damage to your system board, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing the board from the antistatic bag.
- Handle the board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the motherboard and peripherals back into their antistatic bags when not in use.
- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the motherboard.
- Use only the correct type of onboard CMOS battery as specified by the manufacturer. Do not install the onboard battery upside down to avoid possible explosion.

Unpacking

- The motherboard is shipped in antistatic packaging to avoid static damage. When unpacking the board, make sure the person handling it is static protected.

2-2 Processor and Heatsink Installation

When handling the processor package, avoid placing direct pressure on the label area of the fan.

Notes:

1. Always connect the power cord last and always remove it before adding, removing or changing any hardware components. Make sure that you install the processor into the CPU socket before you install the CPU heatsink.

2. Intel's boxed Xeon CPU package contains the CPU fan and heatsink assembly. If you buy a CPU separately, make sure that you use only Intel-certified multi-directional heatsink and fan.

3. The Intel Xeon LGA 771 heatsink and fan comes with a push-pin design and no tool is needed for installation.

4. Make sure to install the motherboard into the chassis before you install the CPU heatsink and fan.)

5. When purchasing an LGA 771 CPU or when receiving a motherboard with an LGA 771 CPU pre-installed, make sure that the CPU plastic cap is in place and none of the CPU pins are bent; otherwise, contact the retailer immediately.

6. Refer to the MB Features Section for more details on CPU support.

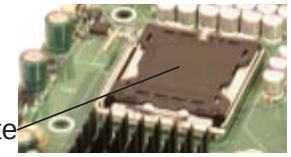
CPU Installation

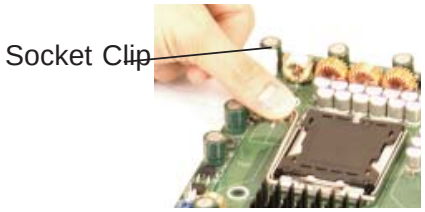
1. Press the socket clip to release the load plate, which covers the CPU socket, from its locking position.

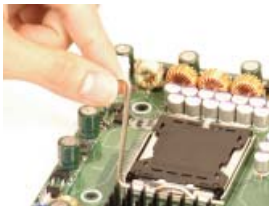
2. Gently lift the socket clip to open the load plate.

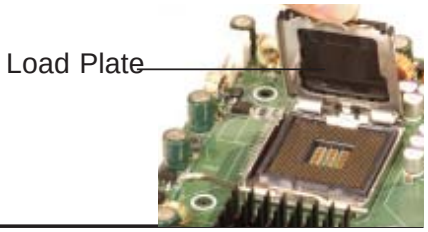
3. Use your thumb and your index finger to hold the CPU at the North Center Edge and the South Center Edge of the CPU.

4. Align CPU Pin1 (the CPU corner marked with a triangle) against the socket corner marked with a triangle cutout.









Loading the CPU into the CPU Socket

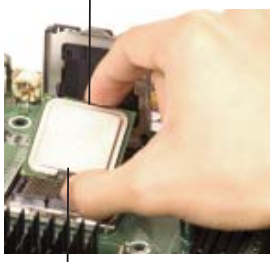
1. Align the CPU key, the semi-circle cutout below a gold dot, against the socket key, which is the notch on the same side of the triangle cutout on the socket.

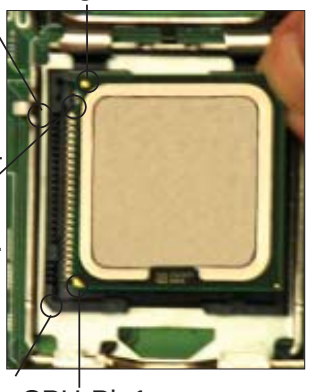
2. Once aligned, carefully lower the CPU straight down into the socket. (Do not drop the CPU on the socket. Do not move the CPU horizontally or vertically. Do not rub the CPU against the surface or against any pins of the socket to avoid damaging the CPU or the socket.)

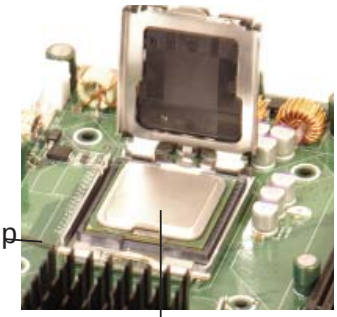
3. With the CPU inside the socket, inspect the four corners of the CPU to make sure that the CPU is properly installed.

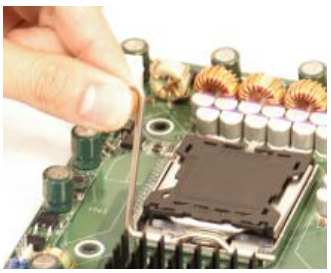
4. Use your thumb to gently push the socket clip down to the clip lock.

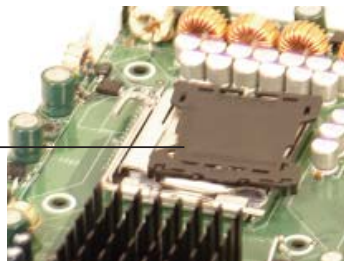
5. If the CPU is properly installed into the socket, the plastic cap will be automatically released from the load plate when the clip is pushed in the clip lock. Remove the plastic cap from the motherboard.











Warning: Please save the plastic cap. The motherboard must be shipped with the plastic cap properly installed to protect the CPU socket pins. Shipment without the plastic cap properly installed will cause damage to the socket pins.

Installing the Heatsink

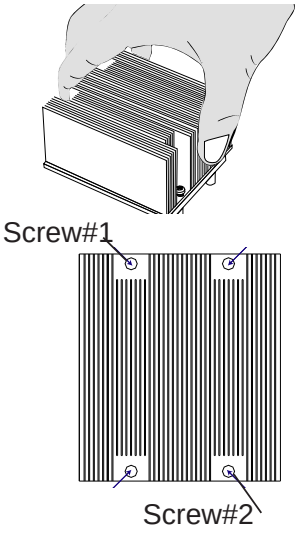
CEK Passive Heatsink

1. Do not apply any thermal grease to the heatsink or the CPU die-the required amount has already been applied.

2. Place the heatsink on top of the CPU so that the four mounting holes are aligned with those on the retention mechanism.

3. Screw in two diagonal screws (ie the #1 and the #2 screws) until just snug. Do not fully tighten the screws to avoid possible damage to the CPU.

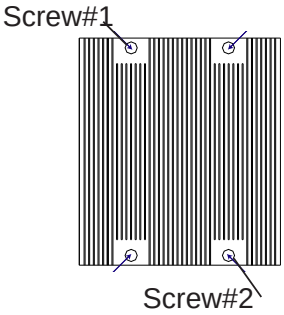
4. Finish the installation by fully tightening all four screws.



To Remove the Heatsink

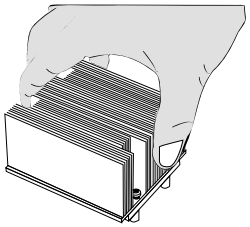
Warning: We do not recommend that the CPU or the heatsink be removed. However, if you do need to uninstall the heatsink, please follow the instructions below to uninstall the heatsink to avoid damage done to the CPU or the CPU socket.

1. Unscrew and remove the heatsink screws from the motherboard in the sequence as show in the picture on the right.



2. Hold the heatsink as shown in the picture on the right and gently wiggle the heatsink to loosen it from the CPU. (Do not use excessive force when wiggling the heatsink!!) Once the heatsink is loosened, remove it from the CPU socket.

3. Clean the surface of the CPU and the heatsink to get rid of the old thermal grease. Reapply the proper amount of thermal grease on the surface before you re-install the CPU and the heatsink.



Mounting the Motherboard in the Chassis

All motherboards have standard mounting holes to fit different types of chassis. Make sure that the locations of all the mounting holes for both motherboard and chassis match. Make sure that the metal standoffs click in or are screwed in tightly. Then, use a screwdriver to secure the motherboard onto the motherboard tray.

Note: some components are very close to the mounting holes. Please take precautionary measures to prevent damage done to these components when you install the motherboard to the chassis.

2-3 Installing DIMMs

Note: Check the Supermicro web site for recommended memory modules.

CAUTION

Exercise extreme care when installing or removing DIMM modules to prevent any possible damage.

DIMM Installation

1. Insert the desired number of DIMMs into the memory slots, starting with DIMM #1A. The memory is interleaved, so you must install two modules at a time, beginning with DIMM #1A, then #2A and so on.
2. Insert each DIMM module vertically into its slot. Pay attention to the notch along the bottom of the module to prevent inserting the DIMM module incorrectly. Gently press down on the DIMM module until it snaps into place in the slot. Repeat for all modules (see step 1 above).

Memory Support

The X7DWU supports up to 64 GB fully buffered (FBD) ECC 1.5V/1.8V DDR2 800/667/533 in 8 DIMMs. Populating DIMM slots with pairs of memory modules of the same size and same type **will result in Interleaved Memory which will improve memory performance.**

Optimized DIMM Population Configurations								
	Branch 0				Branch 1			
Number of DIMMs	Bank 1 (Channel 0)		Bank 2 (Channel 1)		Bank 3 (Channel 2)		Bank 4 (Channel 3)	
2 DIMMs	1A	---	2A	---	---	---	---	---
4 DIMMs	1A	---	2A	---	3A	---	4A	---
8 DIMMs	1A	1B	2A	2B	3A	3B	4A	4B

(**Notes: i.** DIMM slot# specified: DIMM slot to be populated; "---": DIMM slot not to be populated. **ii.** Both FBD 800 MHz, 667 MHz and 533 MHz DIMMs are supported; however, you need to use the memory modules of the same speed and of the same type on a motherboard. **iii.** Interleaved memory is supported when pairs of DIMM modules are installed. For optimal memory performance, please install pairs of memory modules in **both Banks 1 & 2**. **iv.** For memory to work properly, you need to follow the restrictions listed above.)

Note 1: Different types of memory modules are supported by processors with different front side bus speeds. Refer to the Memory Support Table below.

DIMM Modules Supported by CPUs			
CPU / DIMM	FSB: 1600 MHz	FSB: 1333 MHz	FSB: 1066 MHz
800 MHz	Supported	Supported (Note2)	Supported (Note2)
667 MHz	Supported	Supported	Supported
533 MHz	Not Supported	Supported	Supported

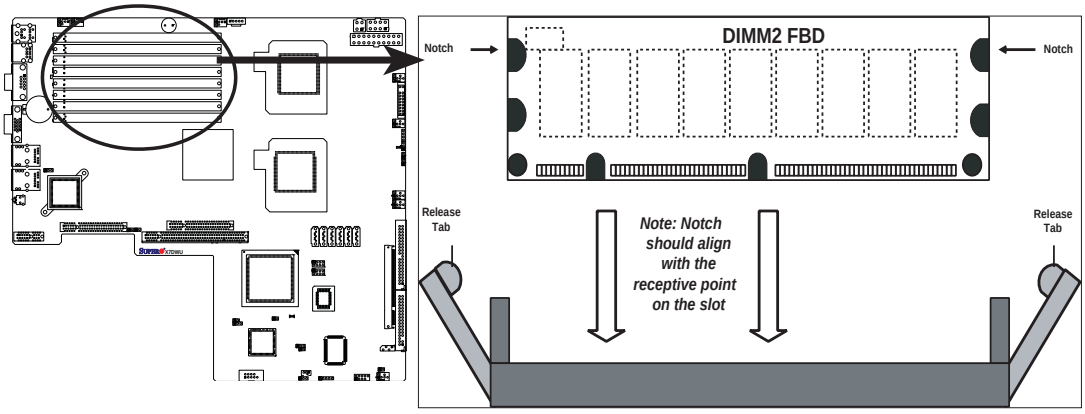
Note 2: DDR2 FBD 800 MHz is supported by the processors with FSB 1333 MHz and 1066 MHz; however, it will run @ 667 MHz.

Note 3: Due to OS limitations, some operating systems may not show more than 4 GB of memory.

Note 4: Due to memory allocation to system devices, memory remaining available for operational use will be reduced when 4 GB of RAM is used. The reduction in memory availability is disproportional.

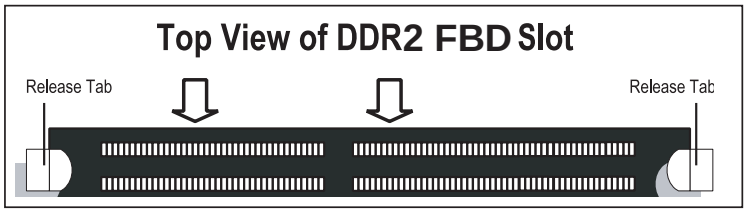
Possible System Memory Allocation & Availability		
System Device	Size	Physical Memory Remaining Available (4 GB Total System Memory)
Firmware Hub flash memory (System BIOS)	1 MB	3.99
Local APIC	4 KB	3.99
Area Reserved for the chipset	2 MB	3.99
I/O APIC (4 Kbytes)	4 KB	3.99
PCI Enumeration Area 1	256 MB	3.76
PCI Express (256 MB)	256 MB	3.51
PCI Enumeration Area 2 (if needed) -Aligned on 256-MB boundary-	512 MB	3.01
VGA Memory	16 MB	2.85
TSEG	1 MB	2.84
Memory available to BIOS & OS applications		2.84

Installing and Removing DIMMs



To Install: Insert module vertically and press down until it snaps into place. Pay attention to the alignment notch at the bottom.

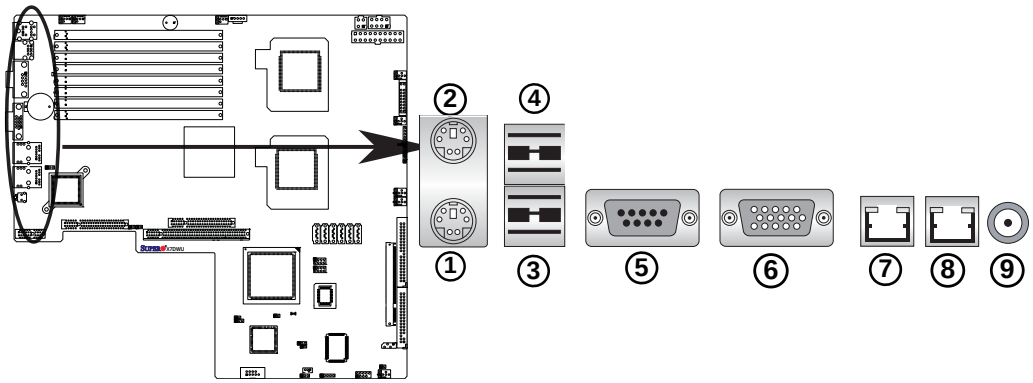
To Remove:
Use your thumbs to gently push the release tabs near both ends of the module. This should release it from the slot.



2-4 Control Panel Connectors/IO Ports

The I/O ports are color coded in conformance with the PC 99 specification. See the figure below for the colors and locations of the various I/O ports.

Back Panel Connectors/IO Ports



Back Panel I/O Port Locations and Definitions

Back Panel Connectors

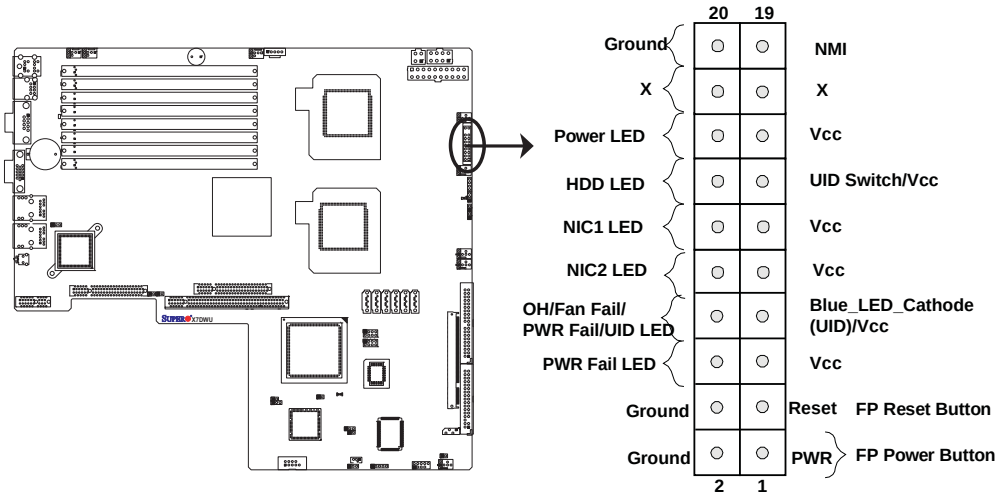
1. Keyboard (Purple)
2. PS/2 Mouse (Green)
3. Back Panel USB Port 0
4. Back Panel USB Port 1
5. COM Port 1 (Turquoise)
6. VGA Port (Blue)
7. Gigabit LAN 1
8. Gigabit LAN 2
9. Rear UID Switch

(See Section 2-5 for details.)

Front Control Panel

JF1 contains header pins for various buttons and indicators that are normally located on a control panel at the front of the chassis. These connectors are designed specifically for use with Supermicro server chassis. See the figure below for the descriptions of the various control panel buttons and LED indicators. Refer to the following section for descriptions and pin definitions.

Front Control Panel (JF1) Header Pins



Front Control Panel Pin Definitions

NMI Button

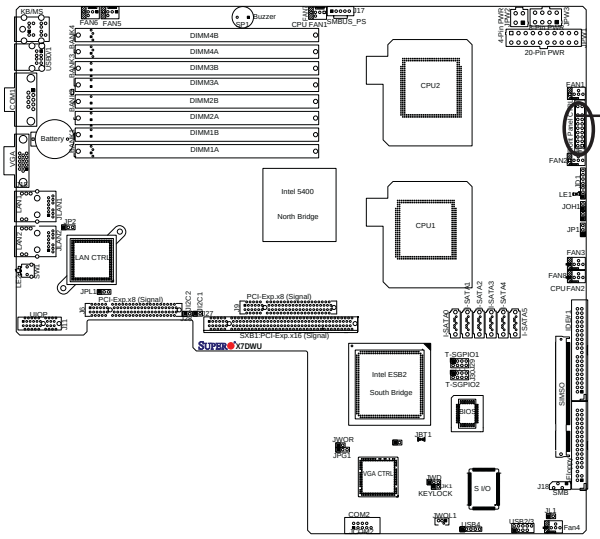
The non-maskable interrupt button header is located on pins 19 and 20 of JF1. Refer to the table on the right for pin definitions.

NMI Button Pin Definitions (JF1)	
Pin#	Definition
19	Control
20	Ground

Power LED

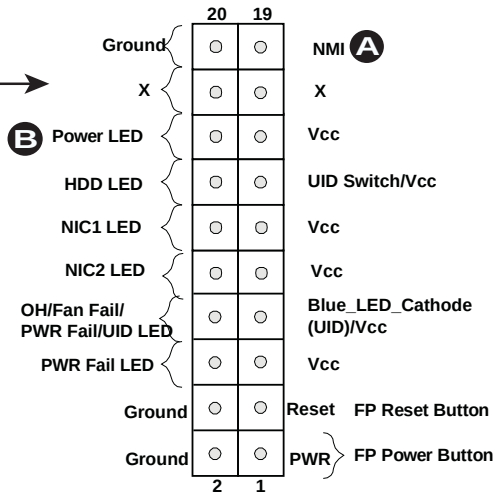
The Power LED connection is located on pins 15 and 16 of JF1. Refer to the table on the right for pin definitions.

Power LED Pin Definitions (JF1)	
Pin#	Definition
15	+5V
16	Ground



A. NMI

B. PWR LED



HDD LED/FP UID Switch

The Front Panel UID Switch connection is located on pin 13 of JF1. Connect a cable with a switch attached to pin 13 of JF1 to provide Unit Identification to your system. (For more information on the UID Switches, please refer to UID Switches on Page 2-22.) The HDD LED connection is located on pins 13 (Vcc) and 14 of JF1. Attach the hard drive LED cable here to display disk activity (for any hard drives on the system, including Serial ATA and IDE). See the table on the right for pin definitions.

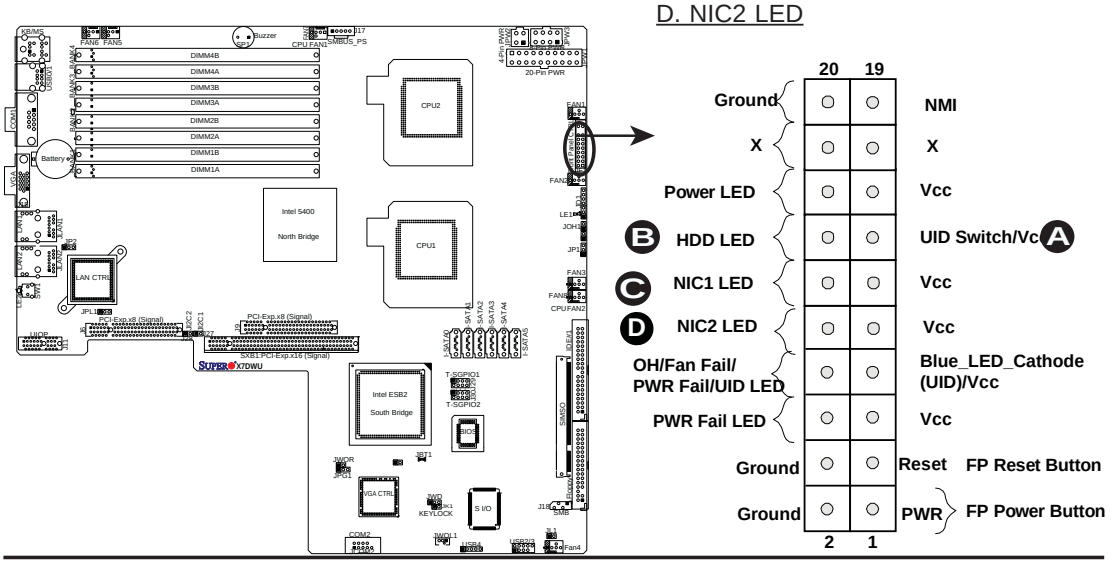
HDD LED Pin Definitions (JF1)	
Pin#	Definition
13	UID Switch/+5V (for HDD Act)
14	HD Active

NIC1/NIC2 LED Indicators

The NIC (Network Interface Controller) LED connection for GLAN port1 is located on pins 11 and 12 of JF1 and the LED connection for GLAN Port2 is on Pins 9 and 10. Attach the NIC LED cables to display network activity. Refer to the table on the right for pin definitions.

GLAN1/2 LED Pin Definitions (JF1)	
Pin#	Definition
9/11	Vcc
10/12	PWR Fail

A. FP UID Switch
B. HDD LED
C. NIC1 LED
D. NIC2 LED



Overheat (OH)/Fan Fail/PWR Fail/ FP UID LED

Connect an LED to the Overheat/Fan Fail/PWR Fail/UID (Unit ID) LED connection on pins 7 and 8 of JF1 to provide advanced warnings of chassis overheating, power failure or fan failure in addition to providing unit identification for your system. (For more information on UID Switches, please refer to Pages 2-11 and 2-22.) Refer to the table on the right for pin definitions.

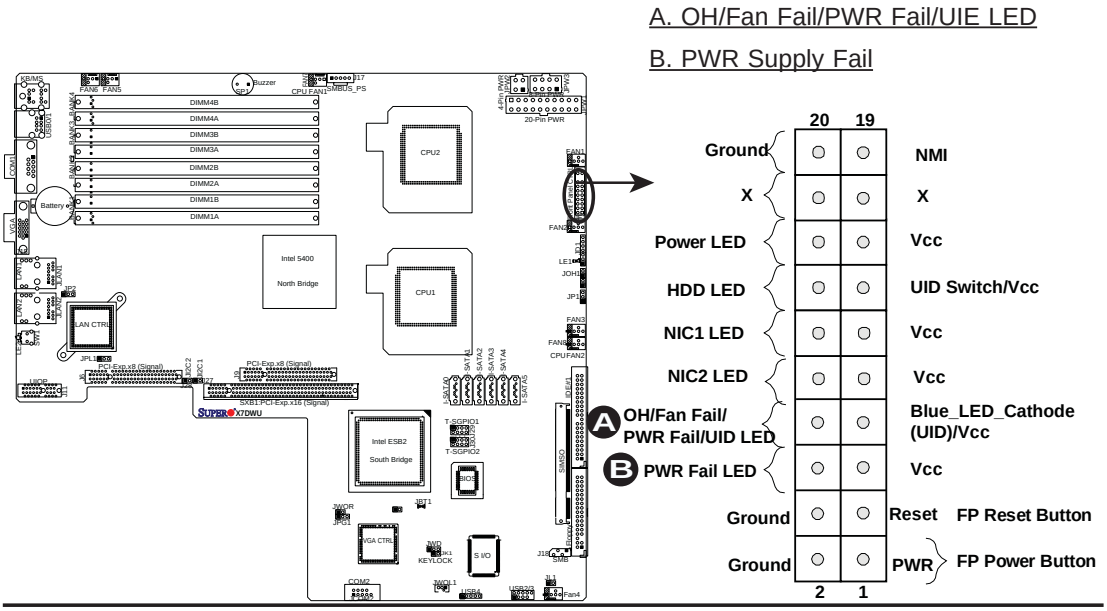
OH/Fan Fail/PWR Fail/FP UID LED Pin Definitions (JF1)	
Pin#	Definition
7	Blue_LED_Cathode (UID)
8	OH_Fan Fail_PWR Fail_UID

OH/Fan Fail/PWR Fail/FP UID Indicator Status	
State	Definition
Off	System Normal
Red On	Overheat
Red Flashing	Fan Fail/PWR Fail
Blue On	FP UID

Power Fail LED

The Power Fail LED connection is located on pins 5 and 6 of JF1. Refer to the table on the right for pin definitions.

PWR Fail LED Pin Definitions (JF1)	
Pin#	Definition
5	Vcc
6	Ground



Reset Button

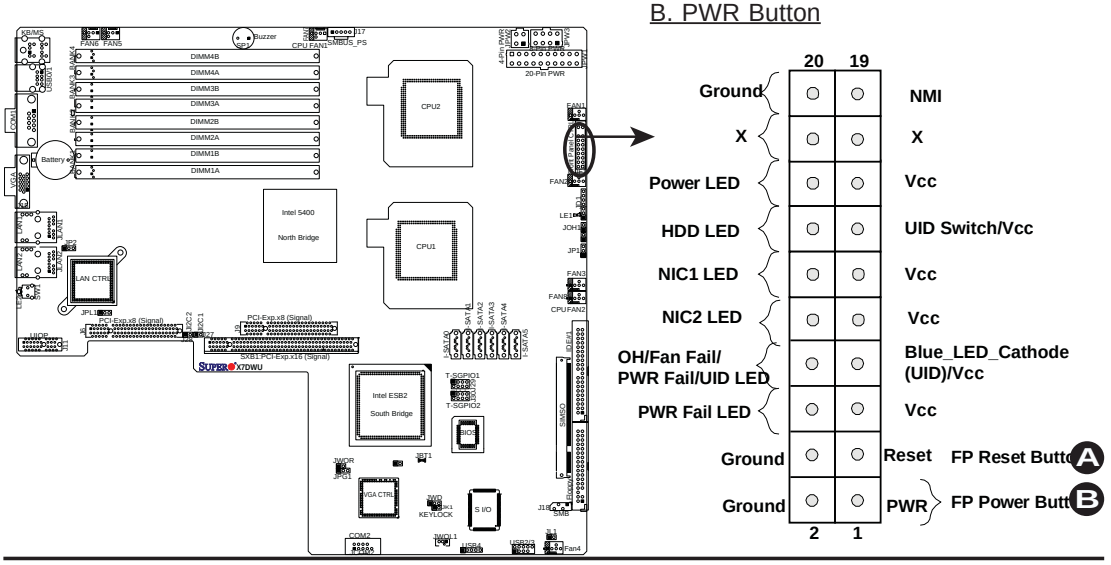
The Reset Button connection is located on pins 3 and 4 of JF1. Attach it to the hardware reset switch on the computer case. Refer to the table on the right for pin definitions.

Reset Button Pin Definitions (JF1)	
Pin#	Definition
3	Reset
4	Ground

Power Button

The Power Button connection is located on pins 1 and 2 of JF1. Momentarily contacting both pins will power on/off the system. This button can also be configured to function as a suspend button (with a setting in the BIOS - see Chapter 4). To turn off the power when set to suspend mode, press the button for at least 4 seconds. Refer to the table on the right for pin definitions.

Power Button Pin Definitions (JF1)	
Pin#	Definition
1	Signal
2	+3V Standby



2-5 Connecting Cables

ATX Power Connector

There are a 20-pin main power supply connector(JPW1) and an 8-pin CPU PWR connector (JPW3) on the motherboard. These power connectors meet the SSI EPS 12V specification. The 4-pin 12V PWR supply is required to provide adequate power to the system. The UIO Power Connector, located at J11, is also required for the UIO slots. For the 8-pin PWR (JPW3), please refer to the item listed below. See the table on the right for pin definitions.

ATX Power 20-pin Connector Pin Definitions

Pin#	Definition	Pin #	Definition
11	+3.3V	1	+3.3V
12	-12V	2	+3.3V
13	COM	3	COM
14	PS_ON	4	+5V
15	COM	5	COM
16	COM	6	+5V
17	COM	7	COM
18	Res (NC)	8	PWR_OK
19	+5V	9	5VSB
20	+5V	10	+12V

Required Connection

12V 4-pin Power Connector Pin Definitions

Pins	Definition
1 and 2	Ground
3 and 4	+12V

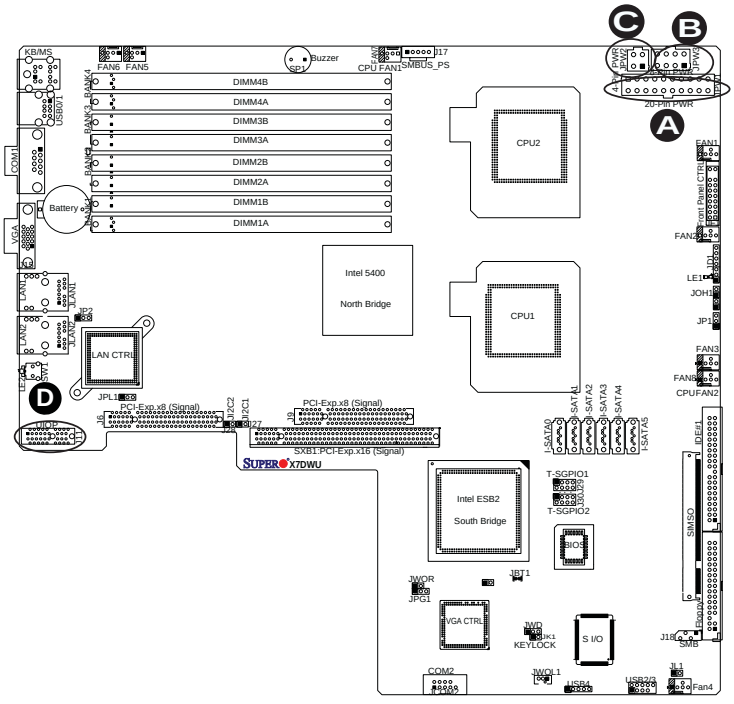
Processor Power Connector

In addition to the Primary ATX power connector (above), the 12V 8-pin CPU PWR connector at JPW3 must also be connected to your power supply. See the table on the right for pin definitions.

Required Connection

12V 8-pin Power CPU Connector Pin Definitions

Pins	Definition
1 through 4	Ground
5 through 8	+12V



A. ATX Main PWR

B. 8-pin Processor PWR

C. 4-pin PWR

D. UIO PWR

Universal Serial Bus (USB)

There are five USB 2.0 (Universal Serial Bus) ports/headers on the motherboard. Two of them are Back Panel USB ports (USB#0/1), and the others are Front Panel USB headers (USB#2/3, USB#4). See the tables on the right for pin definitions.

Back Panel USB (USB 0/1)

Pin#	Definitions
1	+5V
2	PO-
3	PO+
4	Ground
5	N/A

Front Panel USB Pin Definitions (USB 2/3/4)

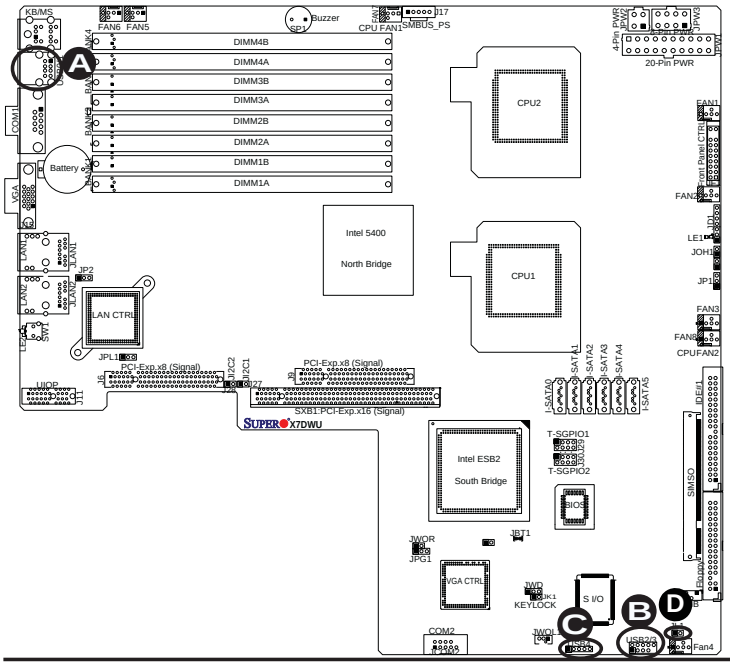
USB2/4 Pin #	USB2/4 Definition	USB3 Pin #	USB3 Definition
1	+5V	1	+5V
2	PO-	2	PO-
3	PO+	3	PO+
4	Ground	4	Ground
5	Key	5	No connection

Chassis Intrusion

A Chassis Intrusion header is located at JL1. Attach the appropriate cable from the chassis to inform you of a chassis intrusion when the chassis is opened.

Chassis Intrusion Pin Definitions (JL1)

Pin#	Definition
1	Intrusion Input
2	Ground



A. Backpanel USB 0/1

B. Front Panel USB 2/3

C. Front Panel USB 4

D. Chassis Intrusion

Fan Headers

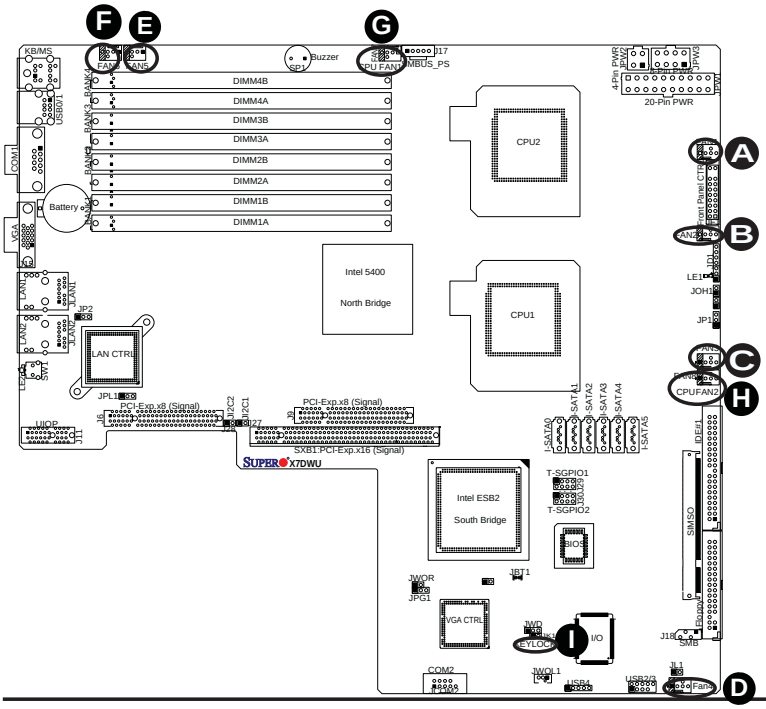
The X7DWU has eight chassis/system fan headers (Fan1 to Fan8). Fan1-Fan6 are chassis/system fans, while Fan7 and Fan8 are CPU fans. The fan speeds for these fans are controlled by Thermal Management via BIOS Hardware Monitor in the Advanced Setting. The default setting is **Disabled**. See the table on the right for pin definitions.

4-Pin Fan Header Pin Definitions	
Pin#	Definition
1	Ground
2	+12V
3	Tachometer
4	PWM Signals

Keylock

The keyboard lock connection is designated JK1. Utilizing this header allows you to inhibit any actions made on the keyboard,effectively "locking" it.

Keylock Pin Definitions	
Pin#	Definition
1	Ground
2	Keylock R-N



A. Fan1
B. Fan2
C. Fan3
D. Fan4
E. Fan5
F. Fan6
G.Fan7(CPU Fan1)
H.Fan8(CPU Fan2)
K.Keylock

ATX PS/2 Keyboard and PS/2 Mouse Ports

The ATX PS/2 keyboard and the PS/2 mouse ports are located on the IO Backpanel. See the table on the right for pin definitions. See the table on the right for pin definitions.

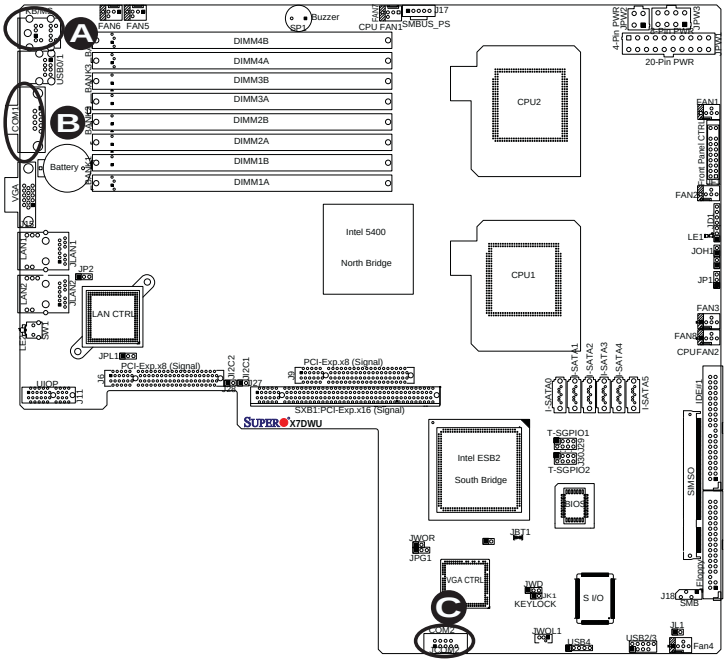
PS/2 Keyboard and Mouse Port Pin Definitions	
Pin#	Definition
1	Data
2	NC
3	Ground
4	VCC
5	Clock
6	NC

Serial Ports

COM1 (JCOM1) is a connector located on the IO Backpanel and COM2 is a header located at JCOM2 to provide front access. See the table on the right for pin definitions.

Serial Port Pin Definitions (COM1/COM2)			
Pin #	Definition	Pin #	Definition
1	CD	6	DSR
2	RD	7	RTS
3	TD	8	CTS
4	DTR	9	RI
5	Ground	10	NC

(Pin 10 is available on COM2 only. NC: No Connection.)



A. KB/Mouse

B. COM1

C. COM2

Wake-On-Ring

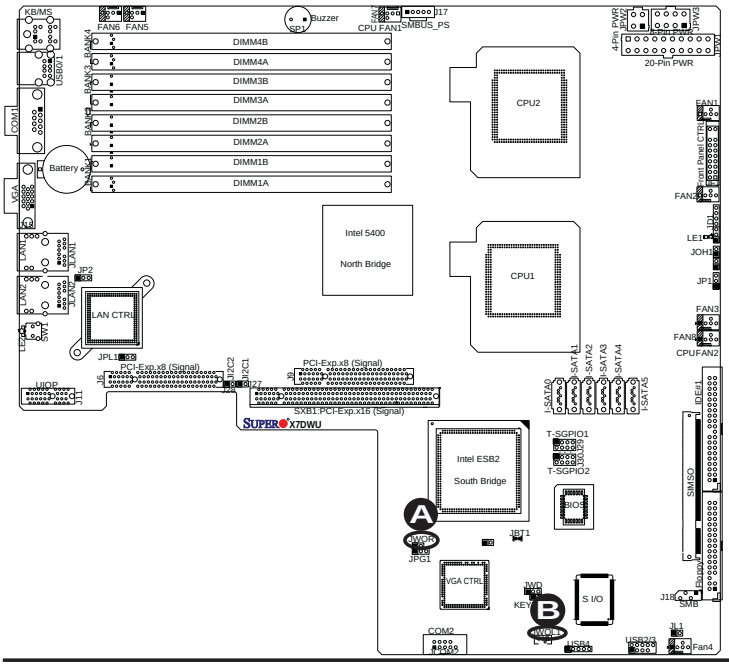
The Wake-On-Ring header is designated JWOR1. This function allows your computer to "wake up" when an incoming call is received by the modem in the suspend state. See the table on the right for pin definitions. You must have a Wake-On-Ring card and cable to use this feature. Please make sure to enable this function in the BIOS.

Wake-On-Ring Pin Definitions	
Pin#	Definition
1	Ground
2	Wake-up

Wake-On-LAN

The Wake-On-LAN header is located at JWOL1 on the motherboard. See the table on the right for pin definitions. (**Note**: You must also have a LAN card with a Wake-On-LAN connector and cable to use this feature.)

Wake-On-LAN Pin Definitions	
Pin#	Definition
1	+5V Standby
2	Ground
3	Wake-up



A. WOR

B. WOL

GLAN 1/2 (Giga-bit Ethernet Ports)

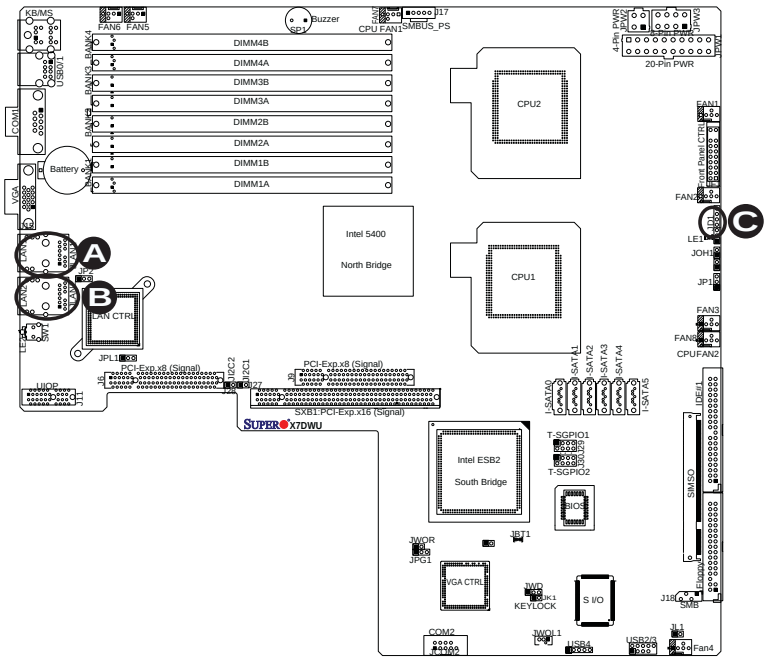
Two G-bit Ethernet ports are designated JLAN1 and JLAN2 on the IO backplane. These ports accept RJ45 type cables.

GLAN1 GLAN2

Power LED/Speaker

On the JD1 header, pins 1-3 are for a power LED, and pins 4-7 are for the speaker. See the table on the right for speaker pin definitions. **Note**: The speaker connector pins are for use with an external speaker. If you wish to use the onboard speaker, you should close pins 6-7 with a jumper.

Speaker Connector	
Pin Setting	Definition
Pins 6-7	Internal Speaker
Pins 4-7	External Speaker



A. GLAN1

B. GLAN2

C. PWR LED/Speaker

Overheat LED/Fan Fail (JOH1)

The JOH1 header is used to connect an LED to provide warnings of chassis overheating. This LED will blink to indicate a fan failure. Refer to the table on right for pin definitions.

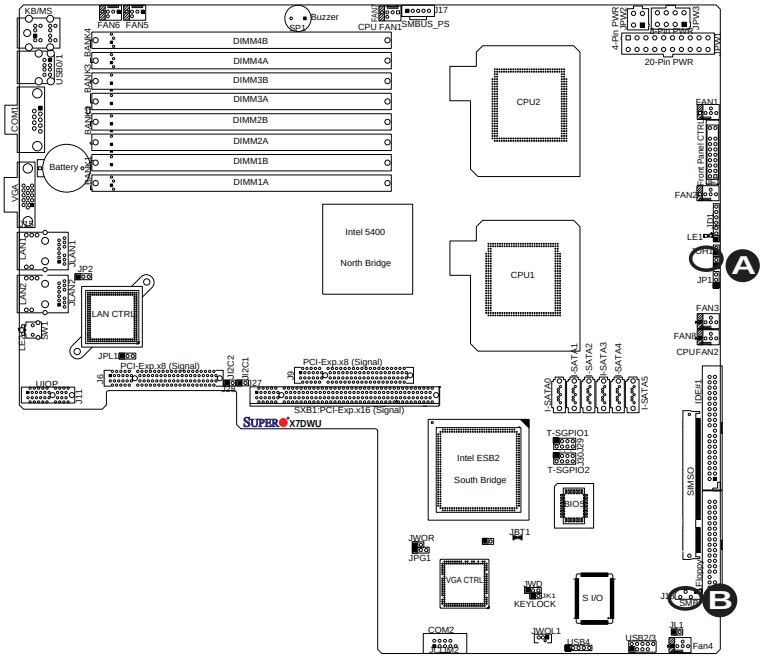
Overheat LED Pin Definitions	
Pin#	Definition
1	5vDC
2	OH Active

OH/Fan Fail LED	
State	Message
Solid	Overheat
Blinking	Fan Fail

SMB

A System Management Bus header is located at J18. Connect the appropriate cable here to utilize SMB on your system.

SMB Header Pin Definitions	
Pin#	Definition
1	Data
2	Ground
3	Clock
4	No Connection



A. OH/Fan Fail LED

B. SMB Header

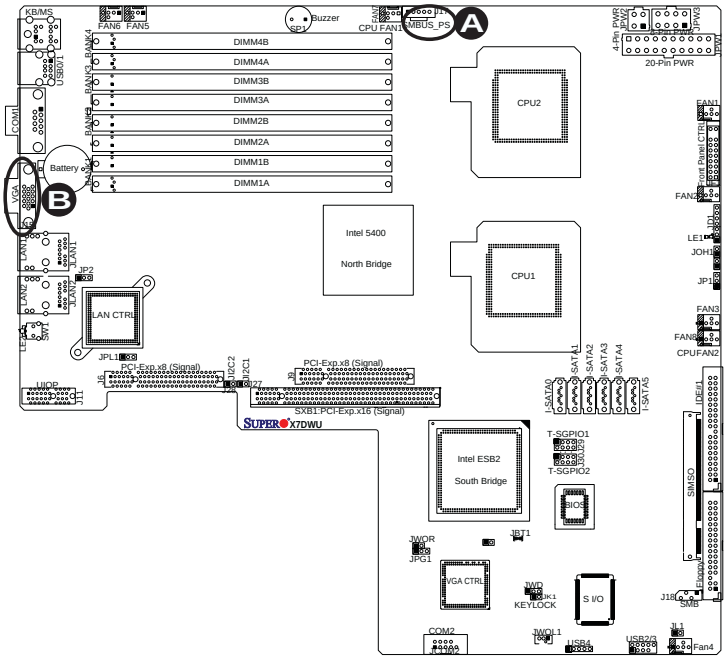
Power SMB (I²C) Connector

Power SMB (I²C) Connector (J17) monitors onboard power supply, fan speeds and system temperatures. See the table on the right for pin definitions.

PWR SMB Pin Definitions	
Pin#	Definition
1	Clock
2	Data
3	PWR Fail
4	Ground
5	+3.3V

VGA Connector

A VGA connector (J15) is located next to the GLAN1 port on the IO backplane. Refer to the board layout below for the location.



A. PWR SMB

B. VGA

Unit Identification Switches

There are two Unit Identification (UID) Switches on the motherboard. The Front Panel UID Switch is connected to Pin 13 of the Front Control Panel (JF1). The Rear UID Switch (SW1) is located next to LAN Port 2. When you push the UID Switch on the Front Control Panel, both Rear UID and Front Panel UID Indicators will be on. Press the FP UID Switch (or the Rear UID Switch-SW1) again to turn off both Indicators. These UID Indicators provide easy identification of a system unit that may be in need of service. (For more information on the FP UID Switch, please refer to FP UID Switch on Page 2-11.)

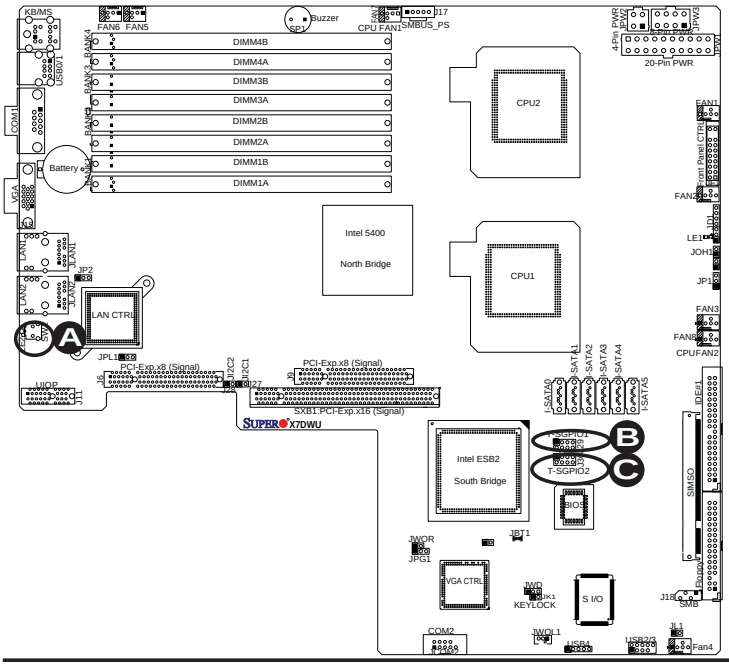
T-SGPIO Headers

Two SGPIO (Serial-Link General Purpose Input/Output) headers are located at J29 and J30 on the motherboard. These headers support serial link interfaces for the onboard SATA and SAS connectors. See the table on the right for pin definitions. Refer to the board layout below for the location.

T-SGPIO Pin Definitions

Pin#	Definition	Pin	Definition
1	NC	2	NC
3	Ground	4	Data
5	Load	6	Ground
7	NC	8	NC

Note: NC= No Connections



A. UID Switch

B. SGPIO1

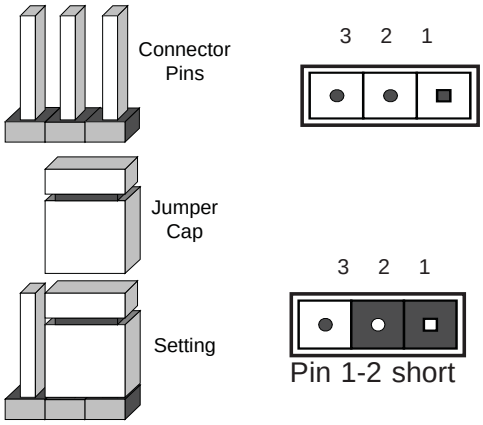
C. SGPIO2

2-6 Jumper Settings

Explanation of Jumpers

To modify the operation of the motherboard, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. See the motherboard layout pages for jumper locations.

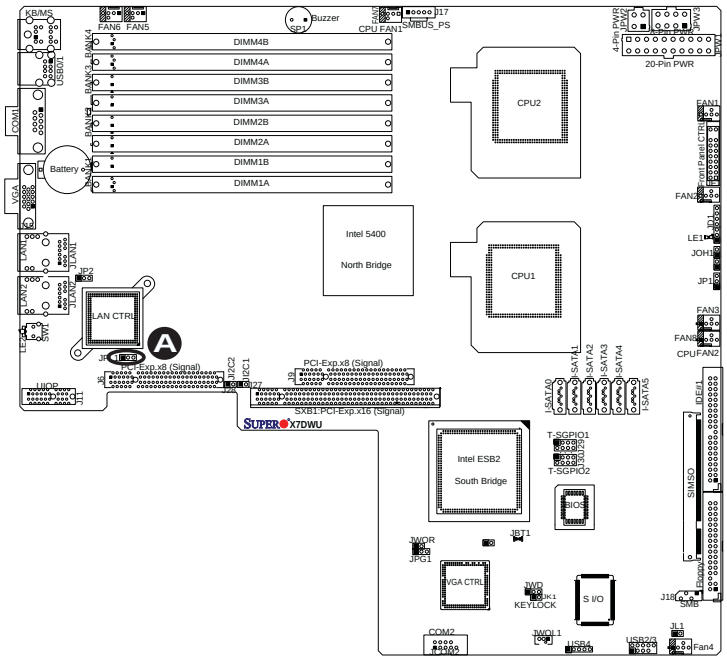
Note: On two pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.



GLAN Enable/Disable

JPL1 enables or disables the GLAN Port1/GLAN Port2 on the motherboard. See the table on the right for jumper settings. The default setting is enabled.

GLAN Enable Jumper Settings	
Pin#	Definition
1-2	Enabled (default)
2-3	Disabled



A. GLAN Ports1/2 Enable

CMOS Clear

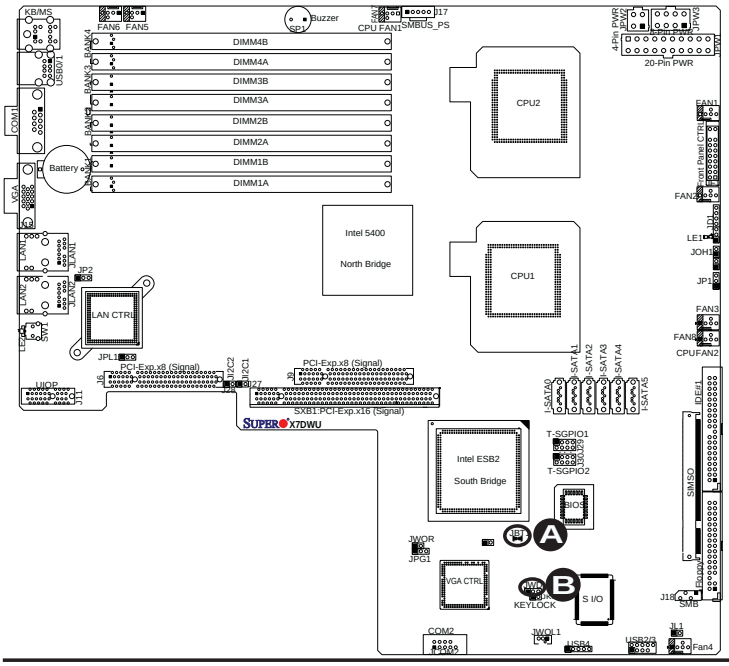
JBT1 is used to clear CMOS. Instead of pins, this "jumper" consists of contact pads to prevent the accidental clearing of CMOS. To clear CMOS, use a metal object such as a small screwdriver to touch both pads at the same time to short the connection. Always remove the AC power cord from the system before clearing CMOS.

Note: For an ATX power supply, you must completely shut down the system, remove the AC power cord and then short JBT1 to clear CMOS.

Watch Dog Enable/Disable

Watch Dog is a system monitor that can reboot the system when a software application hangs. Close Pins 1-2 to reset the system if an application hangs. Close Pins 2-3 to generate a non-maskable interrupt signal for the application that hangs. See the table on the right for jumper settings. Watch Dog must also be enabled in the BIOS.

Watch Dog Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Reset (default)
Pins 2-3	NMI
Open	Disabled



A. Clear CMOS

B. Watch Dog Enable

VGA Enable/Disable

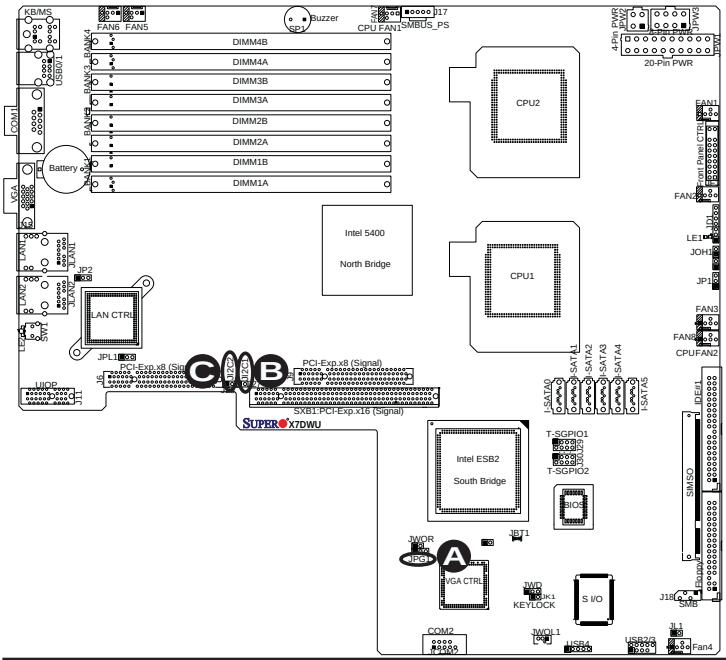
JPG1 allows you to enable or disable the VGA port. The default position is on pins 1 and 2 to enable VGA. See the table on the right for jumper settings.

VGA Enable/Disable Jumper Settings	
Both Jumpers	Definition
Pins 1-2	Enabled
Pins 2-3	Disabled

I²C Bus to PCI-Exp. Slots

JI²C1 (J27)/JI²C2 (J28) allow you to enable I²C Bus to PCI-Express slots. See the table on the right for jumper settings. The default setting is Disabled.

I²C Bus to PCI Slots Jumper Settings	
Jumper	Definition
1-2	Enabled
Off	Disabled (Default)



A. VGA Enabled

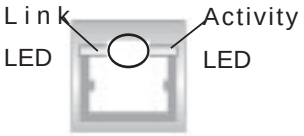
B. JI²C1

C. JI²C2

2-7 Onboard Indicators

GLAN LEDs

There are two GLAN ports on the motherboard. Each Gigabit Ethernet LAN port has two LEDs. The yellow LED indicates activity, while the Link LED may be green, amber or off to indicate the speed of the connection. See the tables at right for more information.



(Rear View: When viewing from the rear side of the system)

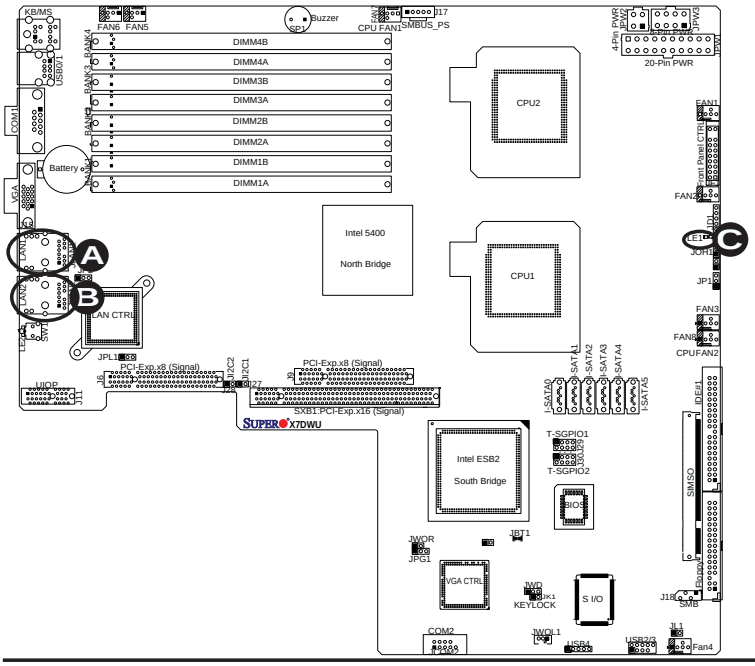
GLAN Activity Indicator (LED Settings)	
LED Color	Definition
Off	Not Active
Yellow	Blinking: Active

GLAN Link Indicator (LED Settings)	
LED Color	Definition
Off	No Connection or 10 Mbps
Green	100 Mbps
Amber	1 Gbps

Onboard Power LED (LE1)

There is an Onboard Power LED (LE1) located on the motherboard. When LE1 is off, the system is off. When the green light is on, the system is on. See the layout below for the LED location.

Onboard PWR LED Indicator (LE1) (LED Settings)	
LED Color	Definition
Off	System Off (PWR cable not connected)
Green	System On
Green: Flashing Quickly	ACPI S1 State
Green: Flashing Slowly	ACPI S3 (STR) State



A. GLAN Port1 LEDs

B. GLAN Port2 LEDs

C. Onboard Power LED

2-8 Floppy Drive, Hard Disk Drive and SIMSO IPMI Connections

Note the following when connecting the floppy and hard disk drive cables:

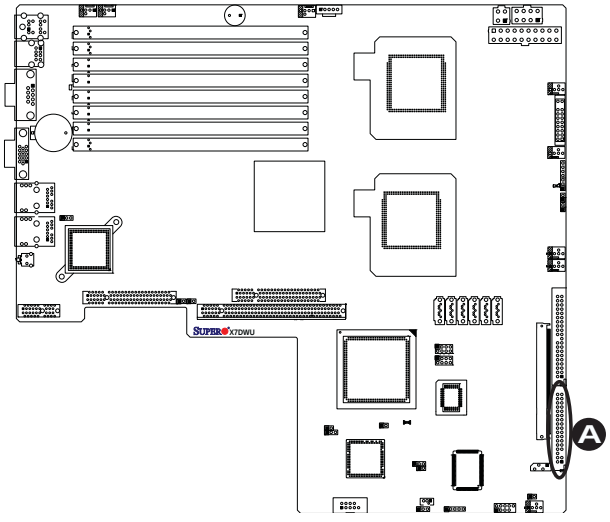
- The floppy disk drive cable has seven twisted wires.
- A red mark on a wire typically designates the location of pin 1.
- A single floppy disk drive ribbon cable has two connectors to provide for two floppy disk drives. The connector with twisted wires always connects to drive A, and the connector that does not have twisted wires always connects to drive B.

Floppy Connector

The floppy connector is located at J22. See the table below for pin definitions.

Floppy Drive Connector Pin Definitions (Floppy)

Pin#	Definition	Pin #	Definition
1	Ground	2	FDHDIN
3	Ground	4	Reserved
5	Key	6	FDEDIN
7	Ground	8	Index
9	Ground	10	Motor Enable
11	Ground	12	Drive Select B
13	Ground	14	Drive Select B
15	Ground	16	Motor Enable
17	Ground	18	DIR
19	Ground	20	STEP
21	Ground	22	Write Data
23	Ground	24	Write Gate
25	Ground	26	Track 00
27	Ground	28	Write Protect
29	Ground	30	Read Data
31	Ground	32	Side 1 Select
33	Ground	34	Diskette



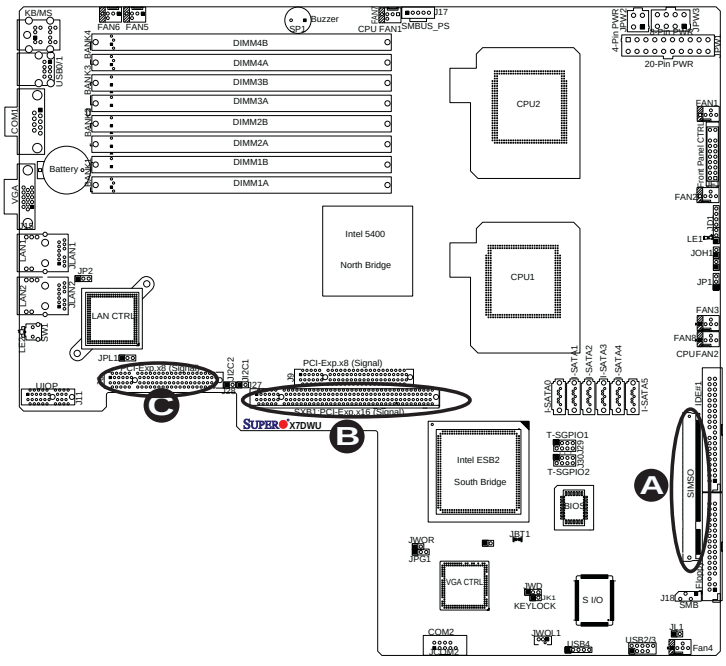
A. Floppy Port

SIMSO IPMI Slot

There is a SIMSO IPMI (Intelligent Platform Management Interface) slot on the motherboard. Refer to the layout below for the location of SIMSO slot.

SXB1/SXB2 Slots

SXB1 and SXB2 are specially designed for Supermicro's riser cards. These two slots are to be used with riser cards. When used with riser cards, the left IO slot (SXB1) supports one PCI-E x16 and one UIO devices; while the right IO slots (PCI-Exp. x8, and SXB2) can support PCI-E x8 devices. Refer to the layout below for the location.



A. SIMSO Slot

B. SXB1 (PCI-E x16) Slot

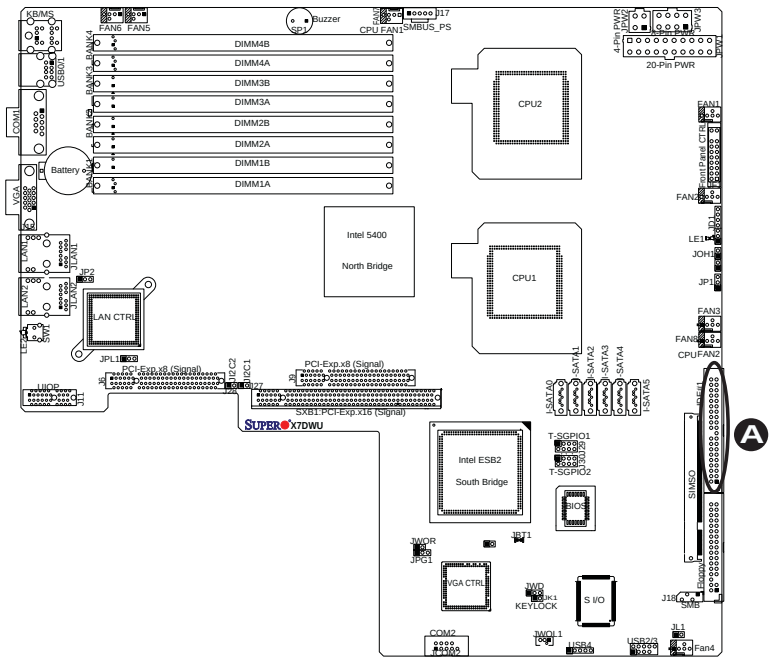
C. SXB1 (PCI-E x18) Slot

IDE Connector

An IDE Connector is located at JIDE1on the motherboard. See the table on the right for pin definitions.

IDE Drive Connector Pin Definitions

Pin#	Definition	Pin #	Definition
1	Reset IDE	2	Ground
3	Host Data 7	4	Host Data 8
5	Host Data 6	6	Host Data 9
7	Host Data 5	8	Host Data 10
9	Host Data 4	10	Host Data 11
11	Host Data 3	12	Host Data 12
13	Host Data 2	14	Host Data 13
15	Host Data 1	16	Host Data 14
17	Host Data 0	18	Host Data 15
19	Ground	20	Key
21	DRQ3	22	Ground
23	I/O Write	24	Ground
25	I/O Read	26	Ground
27	IOCHRDY	28	BALE
29	DACK3	30	Ground
31	IRQ14	32	IOCS16
33	Addr1	34	Ground
35	Addr0	36	Addr2
37	Chip Select 0	38	Chip Select 1
39	Activity	40	Ground



A. IDE#1

Notes

Chapter 3

Troubleshooting

3-1 Troubleshooting Procedures

Use the following procedures to troubleshoot your system. If you have followed all of the procedures below and still need assistance, refer to the 'Technical Support Procedures' and/or 'Returning Merchandise for Service' section(s) in this chapter.

Note: Always disconnect the power cord before adding, changing or installing any hardware components.

Before Power On

1. Make sure that there are no short circuits between the motherboard and chassis.
2. Disconnect all ribbon/wire cables from the motherboard, including those for the keyboard and mouse.
3. Remove all add-on cards.
4. Install one CPU (making sure it is fully seated) and connect the chassis speaker and the power LED to the motherboard. (Check all jumper settings as well.)

No Power

1. Make sure that there are no short circuits between the motherboard and chassis.
2. Make sure that all jumpers are set to their default positions.
3. Make sure that the 115V/230V switch on the power supply is properly set.
4. Turn the power switch on and off to test the system.
5. The battery on your motherboard may be old. Check to verify that it still supplies ~3VDC. If it does not, replace it with a new one.

No Video

1. If the power is on but you have no video, remove all the add-on cards and memory modules.

2. Use the speaker to determine if any beep codes exist. Refer to Appendix A and Appendix B for details on beep codes.

Losing the System's Setup Configuration

1. Make sure that you are using a high quality power supply. A poor quality power supply may cause the system to lose the CMOS setup information. Refer to Section 1-6 for details on recommended power supplies.

2. The battery on your motherboard may be old. Check to verify that it still supplies ~3VDC. If it does not, replace it with a new one. If the above steps do not fix the Setup Configuration problem, contact your vendor for repairs.

Note: If you are a system integrator, VAR or OEM, a POST diagnostics card is recommended. For I/O port 80h codes, refer to App. B.

Memory Errors

1. Make sure that the DIMM modules are properly and fully installed. Check if different speeds of DIMMs have been installed and make sure that the BIOS setup is configured for the fastest speed of RAM used. It is recommended that you use the same RAM speed for all DIMMs in the system.

2. Make sure that you are using the correct type of 1.5V/1.8V DDR2 FBD (Fully Buffered) ECC 800/667/533 SDRAM (recommended by the manufacturer.) Check for bad DIMM modules or slots by swapping a single module between four slots and noting the results. Make sure that all memory modules are fully seated in their slots. To install memory modules, begin with Bank 1, then Bank 2, and so on (see Page 2-6).

3-2 Technical Support Procedures

Before contacting Technical Support, please take the following steps. Also, note that as a motherboard manufacturer, Supermicro does not sell directly to end-users, so it is best to first check with your distributor or reseller for troubleshooting services.

They should know of any possible problem(s) with the specific system configuration that was sold to you.

- Please go through the 'Troubleshooting Procedures' and 'Frequently Asked Question' (FAQ) sections in this chapter or see the FAQs on our web site (http://www.supermicro.com/support/faqs/) before contacting Technical Support.

- BIOS upgrades can be downloaded from our web site at (http://www.supermicro.com/support/bios/)

Note: Not all BIOS can be flashed; it depends on the modifications to the boot block code.

- If you still cannot resolve the problem, include the following information when contacting Supermicro for technical support:

  - Motherboard model and PCB revision number

  - BIOS release date/version (this can be seen on the initial display when your system first boots up)

  - System configuration

  - An example of a Technical Support form is on our web site at (http://www.supermicro.com/support/contact.cfm)

- Distributors: For immediate assistance, please have your account number ready when placing a call to our technical support department. We can be reached by e-mail at support@supermicro.com or by fax at: (408) 503-8000, option 2.

3-3 Frequently Asked Questions

Question: What are the various types of memory that my motherboard can support?

Answer: The X7DWU has eight 240-pin DIMM slots that support 1.5V/1.8V DDR2 FBD ECC 800/667/533 SDRAM modules. It is strongly recommended that you do not mix memory modules of different speeds and sizes.

Question: How do I update my BIOS?

Answer: Answer: It is recommended that you **do not** upgrade your BIOS if you are not experiencing any problems with your system. Updated BIOS files are located on our website at http://www.supermicro.com/support/bios/. Please check our BIOS warning message and the information on how to update your BIOS on our website. Select your motherboard model and download the BIOS file to your computer.

Also, check the current BIOS revision and make sure that it is newer than your BIOS before downloading. You can choose from the zip file and the .exe file. If you choose the zip BIOS file, please unzip the BIOS file onto a bootable USB device. Run the batch file using the format flash.bat filename.rom from your bootable USB device to flash the BIOS. Then, your system will automatically reboot. Please note that this process may take a few minutes to complete. Do not be concerned if the screen is paused for a few minutes.

Warning: Do not shut down or reset the system while updating BIOS to prevent possible system boot failure!

Question: What's on the CD that came with my motherboard?

Answer: The supplied compact disc has quite a few drivers and programs that will greatly enhance your system. We recommend that you review the CD and install the applications you need. Applications on the CD include chipset drivers for the Windows OS, security and audio drivers.

3-4 Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. When returning to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

For faster service, RMA authorizations may be requested online (http://www.supermicro.com/support/rma/).

This warranty only covers normal consumer use and does not cover damages incurred in shipping or from failure due to the alternation, misuse, abuse or improper maintenance of products.

During the warranty period, contact your distributor first for any product problems.

Chapter 4

BIOS

4-1 Introduction

This chapter describes the Phoenix BIOS™ Setup utility for the X7DWU. Phoenix ROM BIOS is stored in a flash chip and can be easily upgraded using a floppy disk-based program.

Note: Due to periodic changes to the BIOS, some settings may have been added or deleted and might not yet be recorded in this manual. Please refer to the Manual Download area of the Supermicro web site <http://www.supermicro.com> for any changes to the BIOS that may not be reflected in this manual.

System BIOS

BIOS is the Basic Input Output System used in all IBM® PC, XT™, AT®, and PS/2® compatible computers. Phoenix BIOS stores the system parameters, types of disk drives, video displays, etc. in the CMOS. CMOS memory requires very little electrical power. When the computer is turned off, a backup battery provides power to the CMOS Logic, enabling it to retain system parameters. Each time the computer is powered on, the computer is configured with the values stored in the CMOS Logic by the system BIOS, which gains control at boot up. The CMOS information that determines the system parameters may be changed by entering the BIOS Setup utility. This Setup utility can be accessed by pressing the <Delete> key at the appropriate time during system boot. (See below.)

Starting the Setup Utility

Normally, the only visible POST (Power On Self Test) routine is the memory test. As the memory is being tested, press the <Delete> key to enter the main menu of the BIOS Setup utility. From the main menu, you can access the other setup screens, such as the Security and Power menus. Beginning with Section 4-3, detailed descriptions are given for each parameter setting in the Setup utility.

Warning: Do not shut down or reset the system while updating BIOS to prevent possible boot failure.

4-2 Running Setup

Note: Default settings are in bold text unless otherwise noted.

The BIOS setup options described in this section are selected by choosing the appropriate text from the main BIOS Setup screen. All displayed text is described in this section, although the screen display is often all you need to understand how to set the options (See the next page).

When you first power on the computer, the Phoenix BIOS™ is immediately activated.

While the BIOS is in control, the Setup program can be activated in one of two ways:

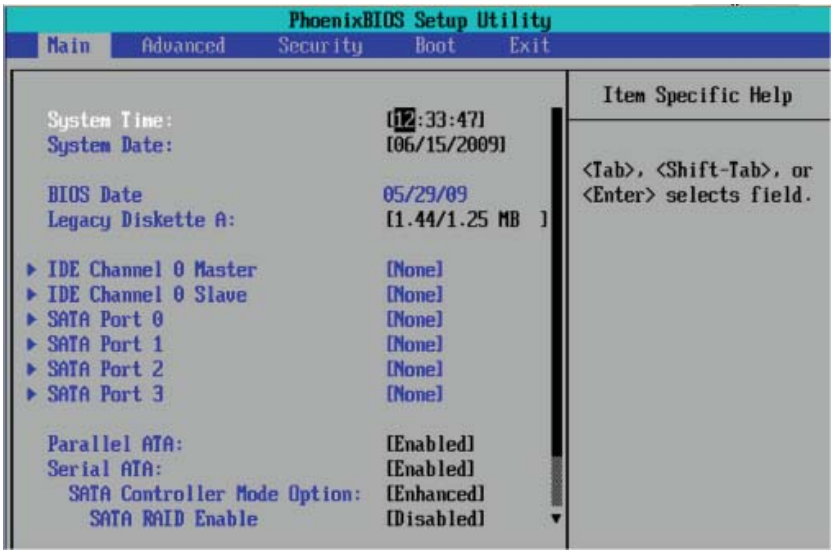
1. By pressing <Delete> immediately after turning the system on, or

2. When the message shown below appears briefly at the bottom of the screen during the POST (Power On Self-Test), press the <Delete> key to activate the main Setup menu:

Note: Press the <Delete> key to enter Setup

4-3 Main BIOS Setup

All main Setup options are described in this section. The main BIOS Setup screen is displayed below.



Use the Up/Down arrow keys to move among the different settings in each menu. Use the Left/Right arrow keys to change the options for each setting. Press the <Esc> key to exit the CMOS Setup Menu. Items that use submenus are indicated with the ▶icon. With the item highlighted, press the <Enter> key to access the submenu.

System Time

To set the system date and time, key in the correct information in the appropriate fields. Then press the <Enter> key to save the data.

System Date

Using the arrow keys, highlight the month, day and year fields, and enter the correct data. Press the <Enter> key to save the data.

BIOS Date

This field displays the date when this version of BIOS was built.

Legacy Diskette A

This setting allows the user to set the type of floppy disk drive installed as diskette A. The options are Disabled, 360Kb 5.25 in, 1.2MB 5.25 in, 720Kb 3.5 in, **1.44/1.25MB**, 3.5 in and 2.88MB 3.5 in.

▶IDE Channel 0 Master/Slave, SATA Port 0, SATA Port 1, SATA Port 2, and SATA Port 3

These settings allow the user to set the parameters of the slots indicated above. Press <Enter> to activate the following submenu screen for detailed options of these items. Set the correct configurations accordingly.

The following items will be displayed in the submenu:

Type

This feature allows you to select the type of disk drive/slot specified. Select **Auto** to allow the BIOS to automatically configure the parameters of the disk drive installed at the connection. Enter a number between 1 to 39 to select a predetermined HDD type. Select User to allow the user to enter the parameters of the HDD installed. Select CDROM if a CDROM drive is installed. Select ATAPI if a removable disk drive is installed.

Multi-Sector Transfers

This item allows the user to specify the number of sectors per block to be used in multi-sector transfer. The options are **Disabled**, 4 Sectors, 8 Sectors, and 16 Sectors.

LBA Mode Control

This item determines whether the Phoenix BIOS will access the IDE Channel 0 Master Device via the LBA mode. The options are Enabled and **Disabled**.

32 Bit I/O

This option allows the user to enable or disable the function of 32-bit data transfer. The options are Enabled and **Disabled**.

Transfer Mode

This option allows the user to set the transfer mode. The options are **Standard**, Fast PIO1, Fast PIO2, Fast PIO3, Fast PIO4, FPIO3/DMA1 and FPIO4/DMA2.

Ultra DMA Mode

This option allows the user to select Ultra DMA Mode. The options are **Disabled**, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4, and Mode 5.

Parallel ATA

This setting allows the user to enable or disable the function of Parallel ATA. The Options are Disabled and **Enabled**.

Serial ATA

This setting allows the user to enable or disable the function of Serial ATA. The options are Disabled and **Enabled**.

Native Mode Operation (Available when SATA Controller Mode below is set to Compatible)

This setting allows the user to select the native mode for the hard drives. The options are: Serial ATA, and **Auto**.

SATA Controller Mode

This setting allows the user to select Compatible to allow the SATA and PATA drives to be automatically-detected and be placed in the Legacy Mode by the BIOS. Select **Enhanced** to allow the SATA and PATA drives to be to be automatically-detected and be placed in the Native IDE Mode. (Note: The Enhanced mode is supported by the Windows 2000 OS or a later version.) When the SATA Controller Mode is set to Enhanced, the following items will display:

SATA RAID Enable (Available when SATA Controller Mode above is set to Enhanced.)

Select Enable to enable Serial ATA RAID Functions. (For the Windows OS environment, use the RAID driver if this feature is set to Enabled. When this item is set to Enabled, the item: "ICH RAID Code Base" will be available for you to select either Intel or Adaptec Host RAID firmware. If this item is set to Disabled, the item-SATA AHCI Enable will be available.) The options are Enabled and **Disabled**.

ESB2 RAID CodeBase (Available when SATA RAID is Enabled.)

Select Intel to enable Intel's SATA RAID firmware. Select Adaptec to use Adaptec's HostRAID firmware. The options are **Intel** and Adaptec.

SATA AHCI (Available when SATA RAID is Disabled.)

Select Enable to enable the function of Serial ATA Advanced Host Interface. (Take caution when using this function. This feature is for advanced programmers only. The options are Enabled and **Disabled**.)

System Memory

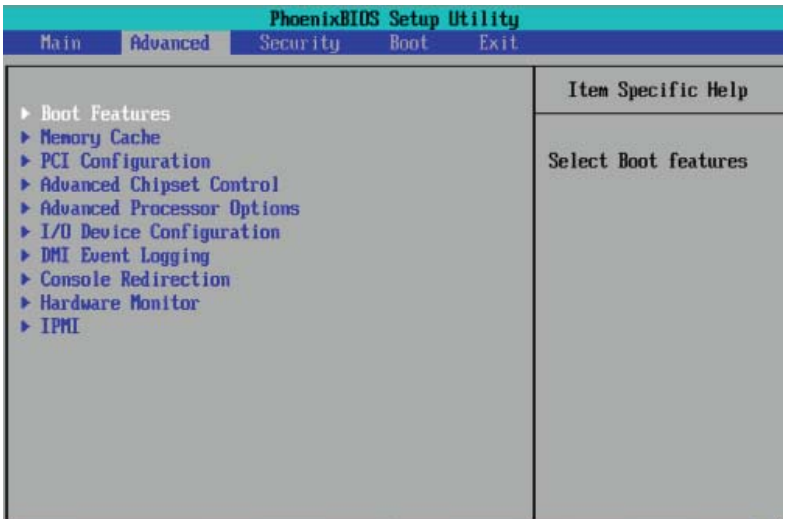
This item displays the size of system memory being detected by the BIOS.

Extended Memory

This item displays the size of extended memory being detected by the BIOS.

4-4 Advanced Setup

Choose Advanced from the Setup Utility menu with the arrow keys. You should see the following display. The items with a triangle beside them have submenus that can be accessed by highlighting the item and pressing <Enter>.



▶Boot Features

QuickBoot Mode

If enabled, this feature will speed up the POST (Power On Self Test) routine by skipping certain tests after the computer is turned on. The settings are **Enabled** and Disabled. If Disabled, the POST routine will run at normal speed.

QuietBoot Mode

This setting allows you to **Enable** or Disable the graphic logo screen during boot-up. The settings are **Enabled** and Disabled.

POST Errors

Set to **Enabled** to display POST Error Messages if an error occurs during bootup. If set to Disabled, the system will continue to boot without displaying any error messages even when a boot error occurs. The settings are **Enabled** and Disabled.

ACPI Mode

Use the setting to determine if you want to employ ACPI (Advanced Configuration and Power Interface) power management on your system. The options are **Yes** and No.

Power Button Behavior

If set to I**nstant-Off**, the system will power off immediately as soon as the user hits the power button. If set to 4-sec., the system will power off when the user presses the power button for 4 seconds or longer. The options are **Instant-off** and 4-sec override.

Resume On Modem Ring

Select On to "wake your system up" when an incoming call is received by your modem. The options are On and **Off**.

EFI OS Boot

If enabled, this feature provides support for EFI OS booting. The options are Enabled and **Disabled**.

Power Loss Control

This setting allows you to decide how the system will react when power returns after an unexpected loss of power. The options are Stay Off, Power On, and **Last State**.

Watch Dog

If enabled, this option will automatically reset the system if the system is not active for more than 5 minutes. The options are Enabled and **Disabled**.

Summary Screen

This setting allows you to **Enable** or Disable the summary screen which displays the system configuration during bootup. The options are **Enabled** and Disabled.

▶Memory Cache

Cache System BIOS Area

This setting allows you to designate a reserve area in the system memory to be used as a System BIOS buffer to allow the BIOS to write (cache) data into this reserved memory area. Select **Write Protect** to enable this function, and this area will be reserved for BIOS ROM access only. Select Uncached to disable this function and make this area available for other devices.

Cache Video BIOS Area

This setting allows you to designate a reserve area in the system memory to be used as a Video BIOS buffer to allow the BIOS to write (cache) data into this reserved memory area. Select **Write Protect** to enable the function and this area will be reserved for Video BIOS ROM access only. Select Uncached to disable this function and make this area available for other devices.

Cache Base 0-512K

If enabled, this feature will allow the data stored in the base memory area: Block 0-512K to be cached (written) into a buffer, a storage area in Static DROM (SDROM) or to be written into L1, L2 cache inside the CPU to speed up CPU operations. Select Uncached to disable this function. Select Write Through to allow data to be

cached into the buffer and written into the system memory at the same time. Select Write Protect to prevent data from being written into the base memory area of Block 0-512K. Select Write Back to allow the CPU to write data back directly from the buffer without writing data to the System Memory for fast CPU data processing and operation. The options are Uncached, Write Through, Write Protect, and **Write Back**.

Cache Base 512K-640K

If enabled, this feature will allow the data stored in the memory area: 512K-640K to be cached (written) into a buffer, a storage area in the Static DROM (SDROM) or written into L1, L2, L3 cache inside the CPU to speed up CPU operations. Select Uncached to disable this function. Select Write Through to allow data to be cached into the buffer and written into the system memory at the same time. Select Write Protect to prevent data from being written into the base memory area of Block 512-640K. Select Write Back to allow the CPU to write data back directly from the buffer without writing data to the System Memory for fast CPU data processing and operation. The options are Uncached, Write Through, Write Protect, and **Write Back**.

Cache Extended Memory

If enabled, this feature will allow the data stored in the extended memory area (above 1MB) to be cached (written) into a buffer, a storage area in Static DROM (SDROM) or written into L1, L2 cache inside the CPU to speed up CPU operations. Select Uncached to disable this function. Select Write Through to allow data to be cached into the buffer and written into the system memory at the same time. Select Write Protect to prevent data from being written into the system memory area above 1MB. Select Write Back to allow the CPU to write data back directly from the buffer without writing data to the System Memory for fast CPU data processing and operation. The options are Uncached, Write Through, Write Protect, and **Write Back**.

Discrete MTRR Allocation

If enabled, MTRRs (-Memory Type Range Registers) are configured as distinct, separate units and cannot be overlapped. Set to Enabled to enhance graphic performance when using a Linux graphic driver that requires write-combining configuration with 4GB or more memory. The options are Enabled and **Disabled.**

▶PCI Configuration

Access the submenu to make changes to the following settings for PCI devices.

Onboard GLAN1/GLAN2 (Gigabit- LAN) OPROM Configure

Enabling this option provides the capability to boot from the GLAN port specified. The options are **Disabled** and Enabled.

Option ROM Replacement

Select Enabled to allow the user to select the bootable peripheral device. If a system hangs during bootup, please change the setting of this item. The options are Enabled and **Disabled**.

ROM Scan Ordering

This feature allows the user to decide which Option ROM to be activated first. The options are **Onboard first** and Add-On first.

PCI Parity Error Forwarding

The feature allows SERR and PERR errors detected in PCI slots to be sent (forwarded) to the BIOS DMI Event Log for the user to review. The options are Enabled and **Disabled**.

PCI Fast Delayed Transaction

Enable this function to improve DMA data transfer rate for a PCI 32-bit multimedia card. The options are Enable and **Disabled**.

Reset Configuration Data

If set to Yes, this setting clears the Extended System Configuration Data- (ESCD) area. The options are Yes and **No**.

▶SXB1 Slot#1 x8 (x16), SXB1 Slot#2 x8, SXB2 Slot#1 x8, SXB2 Slot#2 x4 (x8), SXB2 Slot#3 x4

Access the submenu for each of the settings above to make changes to the following:

Option ROM Scan

When enabled, this setting will initialize the device expansion ROM. The options are **Enabled** and Disabled.

Enable Master

This setting allows you to enable the selected device as the PCI bus master. The options are **Enabled** and Disabled.

Latency Timer

This setting allows you to set the clock rate for Bus Master. A high-priority, high-throughout device may benefit from a greater clock rate. The options are **Default**, 0020h, 0040h, 0060h, 0080h, 00A0h, 00C0h, and 00E0h. For Unix, Novell and other Operating Systems, please select the option: other. If a drive fails after the installation of a new software, you might want to change this setting and try again. A different OS requires a different Bus Master clock rate.

Large Disk Access Mode

This setting determines how large hard drives are to be accessed. The options are **DOS** or Other (for Unix, Novelle NetWare and other operating systems).

▶Advanced Chipset Control

Access the submenu to make changes to the following settings.

Warning: Take caution when changing the Advanced settings. An incorrect setting, a very high DRAM frequency or an incorrect DRAM timing may cause the system to become unstable. When this occurs, reset the setting to the default setting.

SERR Signal Condition

This setting specifies the ECC Error conditions that an SERR# is to be asserted. The options are None, Correctable Error, **Uncorrectable Error,** and Both.

Clock Spectrum Feature

Select Enable to enable Clock Spectrum support in the clock generator to help reduce the level of Electromagnetic Interference caused by the components when needed. The options are Enabled and **Disabled**.

Intel VT for Directed I/O (VT-d)

Select Enabled to bring up the following Intel VT for Directed I/O (VT-d) Configuration submenu. The options are Enabled and **Disabled**.

4GB PCI Hole Granularity

This feature allows you to select the granularity of PCI hole for PCI slots. If MTRRs are not enough, this option may be used to reduce MTRR occupation. The options are: **256 MB**, 512 MB, 1GB and 2GB.

Memory Voltage

This feature allows the user to set memory voltage for onboard memory modules. Select auto to allow the BIOS to automatically detect the onboard memory voltage according to the status of its SPD (Serial Presence Detect). Select 1.5V to force the memory modules to run on 1.5V to accommodate lower-power FBDIMM (Fully Buffered DIMM). Select 1.8V to force the memory module to run on 1.8 for testing. The options are **Auto**, 1.5V, and 1.8V.

⚠ **Warning**: If set to 1.8V, damage may occur to FBDIMM memory modules that only support 1.5V.

Memory Branch Mode

This option determines how the two memory branches operate. System address space can either be interleaved between the two branches or Sequential from one branch to another. Mirror mode allows data correction by maintaining two copies of data in two branches. Single Channel 0 allows a single DIMM population during system manufacturing. The options are **Interleave**, Sequential, Mirroring, and Single Channel 0.

Branch 0 Rank Interleaving & Sparing

Select enable to enable the functions of Memory Interleaving and Memory Sparing for Branch 0 Rank. The options for Memory Interleaving are 1:1, 2:1 and **4:1**. The options for Sparing are Enabled and **Disabled**.

Branch 1 Rank Interleaving & Sparing

Select enable to enable the functions of Memory Interleaving and Memory Sparing for Branch 1 Rank. The options for Memory Interleaving are 1:1, 2:1 and **4:1**. The options for Sparing are Enabled and **Disabled**.

Enhanced x8 Detection

Select Enabled to enable Enhanced x8 DRAM UC Error Detection. The options are Disabled and **Enabled**.

Demand Scrub

Scrubbing is a process that allows the North Bridge to correct correctable memory errors found on an FBD memory module. When the CPU or I/O issues a demand-read command, and the read data from memory turns out to be a correctable ECC, it is corrected and sent to the original source. Memory is updated as well. Select Enabled to use Demand Scrubbing for ECC memory correction. The options are **Enabled** and Disabled.

High Temperature DRAM Operation

When set to Enabled, the BIOS will refer to the SPD table to set the maximum DRAM temperature. If disabled, the BIOS will set the maximum DRAM temperature based on a predefined value. The options are Enabled and **Disabled**.

AMB Thermal Sensor

Select Enabled to activate the thermal sensor embedded in the Advanced Memory Buffer on a fully buffered memory module for thermal monitoring. The options are **Disabled** and Enabled.

Thermal Throttle

Select Enabled to enable closed-loop thermal throttling on a fully buffered (FBD) memory module. In the closed-loop thermal environment, thermal throttling will be activated when the temperature of the FBD DIMM module exceeds a predefined threshold. The options are Enabled and **Disabled**.

Global Activation Throttle

Select Enabled to enable open-loop global thermal throttling on a fully buffered (FBD) memory module to make it active whenever the number of activate control exceeds a predefined number. The options are Enabled and **Disabled**.

Force ITK Configuration Clocking

Select Enabled to configure FBD clock settings to support ITK testing. The options are **Disabled** and Enabled.

Reserved Branch for ITK Test (Available if Force ITK Configuration Clocking is enabled.)

This feature allows the user to specify the memory branch number to be reserved for ITK testing. The default setting is **Branch 1**.

Snoop Filter

Select Enabled to eliminate snoop traffic to the graphics port to greatly improve system performance when running graphics intensive applications. The options are **Enabled** and Disabled.

I/OAT2

The Intel I/OAT (I/O Acceleration Technology) significantly reduces CPU overhead by leveraging CPU architectural improvements, freeing resources for more other tasks. The options are **Enabled** and Disabled.

Max Payload Size

Some add-on cards perform faster with the coalesce feature, which limits the payload size to 128 MB; while others, with a payload size of 256 MB which inhibits the coalesce feature. Please refer to your add-on card user guide for the desired setting. The options are 256 MB, 128MB, and **Auto**.

Route Port 80h Cycles to

This feature allows the user to decide which bus to send debug information to. The options are PCI and **LPC.**

High Precision Event Time

Select Yes to activate the High Precision Event Timer (HPET), which is capable of producing periodic interrupts at a much higher frequency than a Real-time Clock

(RTC) can in synchronizing multimedia streams, providing smooth playback and reducing the dependency on other timestamp calculation devices, such as an x86 RDTSC Instruction embedded in a CPU. The High Precision Event Timer is used to replace the 8254 Programmable Interval Timer. The options are **Yes** and No.

USB Function

Select Enabled to enable the function of USB devices specified. The settings are **Enabled** and Disabled.

Legacy USB Support

This setting allows you to enable support for Legacy USB devices. The settings are **Enabled** and Disabled.

▶Advanced Processor Options

Access the submenu to make changes to the following settings.

CPU Speed

This is a display that indicates the speed of the installed processor.

Frequency Ratio (Available when supported by the CPU.)

The feature allows the user to set the internal frequency multiplier for the CPU. The options are: **Default**, x6, x7 and x8.

Core-Multi-Processing (Available when supported by the CPU.)

Set to Enabled to use a processor's Second Core and beyond. (Please refer to Intel's website for more information.) The options are Disabled and **Enabled.**

Machine Checking (Available when supported by the CPU.)

Set to Enabled to use this function which will allow the CPU to detect and report hardware (machine) errors via a set of model-specific registers (MSRs). The options are **Disabled** and Enabled.

Fast String Operations (Available if supported by the CPU.)

Set to Enabled to enable the fast string operations for special CPU instructions. The options are Disabled and **Enabled**.

Thermal Management 2 (Available if supported by the CPU.)

Set to **Enabled** to use Thermal Management 2 (TM2) which will lower CPU voltage and frequency when the CPU temperature reaches a predefined overheat threshold. Set to Disabled to use Thermal Manager 1 (TM1), allowing CPU clocking to be regulated via CPU Internal Clock modulation when the CPU temperature reaches the overheat threshold. The options are Disabled and **Enabled.**

C1/C2 Enhanced Mode (Available if supported by the CPU.)

Set to Enabled to enable Enhanced Halt (C1) State and Stop Clock (C2) State to lower CPU voltage/frequency to prevent the processor from overheating. The options are Enabled and **Disabled**. **P**lease refer to Intel's web site for details.)

Execute Disable Bit (Available when supported by the CPU.)

Set to Enabled to allow the processor to classify areas in memory where an application code can execute and where it cannot, and thus preventing a worm or a virus from inserting and creating a flood of codes to overwhelm the processor or damage the system during an attack. The options are Disabled and **Enabled**. For more information regarding this function, please refer to Intel's and Microsoft's web sites.

Adjacent Cache Line Prefetch (Available when supported by the CPU.)

The CPU fetches the cache line for 64 bytes if this option is set to **Disabled**. The CPU fetches both cache lines for 128 bytes as comprised if Enabled. The default settings are **Disabled** for the Intel 5100 Series Processors and **Enable** for the 5000 Series Processors.

Hardware Prefetcher (Available when supported by the CPU.)

Set to **Enabled** to activate the hardware components that are used in conjunction with software programs to prefetch data in order to shorten execution cycles and maximize data processing efficiency. The options are Disabled and **Enabled**.

Set Maximum Ext. CPUID=3

When set to Enabled, the Maximum Extended CPUID will be set to 3. The options are **Disabled** and Enabled.

Direct Cache Access (Available when supported by the CPU.)

Set to Enable to route inbound network IO traffic directly into processor caches to reduce memory latency and improve network performance. The options are Disabled and **Enabled**.

DCA Delay Clocks (Available if supported by the CPU.)

This feature allows the user to set the clock delay setting from snoop to prefetch for Direct Cache Access. Select a setting from 8 (bus cycles) to 120 (bus cycles) (in 8-cycle increment). The default setting is **32** (bus cycles).

Intel <R> Virtualization Technology (Available when supported by the CPU.)

Select Enabled to use the feature of Virtualization Technology to allow one platform to run multiple operating systems and applications in independent partitions, creating multiple "virtual" systems in one physical computer. The options are Enabled and **Disabled**.

Note: If there is any change to this setting, you will need to power off and restart the system for the change to take effect. Please refer to Intel's web site for details.

SMRR Control (Available when supported by the CPU.)

Select Enabled to enable SMRR (System Management Range Registers) Control which will protect operating systems from virus attacks in the SMI (Synchronized Multimedia Integration) mode. The options are Enabled and **Disabled**.

Intel EIST Support (Available when supported by the CPU.)

Select Enabled to use the Enhanced Intel SpeedStep Technology and allow the system to automatically adjust the processor voltage and core frequency in an effort to reduce power consumption and heat dissipation. The options are Enabled, GV1/GV3 Only, C States Only, and **Disabled**. Please refer to Intel's web site for details.

▶I/O Device Configuration

Access the submenu to make changes to the following settings.

KBC Clock Input

This setting allows you to select clock frequency for the keyboard clock. The options are 6MHz, 8MHz, **12MHz**, and 16MHz.

Serial Port A

This setting allows you to decide how Serial Port A is controlled. The options are **Enabled** (user defined), Disabled, and Auto (BIOS- or OS- controlled).

Base I/O Address

This setting allows you to select the base I/O address for Serial Port A. The options are **3F8**, 2F8, 3E8, and 2E8.

Interrupt

This setting allows you to select the IRQ (interrupt request) for Serial Port A. The options are IRQ3 and **IRQ4**.

Serial Port B

This setting allows you to decide how Serial Port B is controlled. The options are **Enabled** (user defined), Disabled, Auto (BIOS controlled) and OS Controlled.

Mode

This setting allows you to set the type of device that will be connected to Serial Port B. The options are **Normal** and IR (for an infrared device).

Base I/O Address

This setting allows you to select the base I/O address for Serial Port B. The options are 3F8, **2F8**, 3E8 and 2E8.

Interrupt

This setting allows you to select the IRQ (interrupt request) for Serial Port B. The options are **IRQ3** and IRQ4.

Floppy Disk Controller

This setting allows you to decide how Floppy Disk controller is controlled. The options are **Enabled** (user defined), Disabled, and Auto (BIOS and OS controlled).

Base I/O Address

This setting allows you to select the base I/O address for the Floppy Disk Drive. The options are **Primary** and Secondary.

▶DMI Event Logging

Access the submenu to make changes to the following settings.

Event Log Validity

This is a display to inform you of the event log validity. It is not a setting.

Event Log Capacity

This is a display to inform you of the event log capacity. It is not a setting.

View DMI Event Log

Highlight this item and press <Enter> to view the contents of the event log.

Event Logging

This setting allows you to **Enable** or Disable event logging.

ECC Event Logging

This setting allows you to **Enable** or Disable ECC event logging.

Mark DMI Events as Read

Highlight this item and press <Enter> to mark the DMI events as read.

Clear All DMI Event Logs

Select Yes and press <Enter> to clear all DMI event logs. The options are Yes and **No**.

▶Console Redirection

Access the submenu to make changes to the following settings.

COM Port Address

This item allows you to specify which COM port to direct the remote console to: Onboard COM A or Onboard COM B. The default setting is **Disabled**.

BAUD Rate

This item allows you to set the BAUD rate for Console Redirection. The options are 300, 1200, 2400, 9600, **19.2K**, 38.4K, 57.6K, and 115.2K.

Console Type

This item allows you to select the Console Redirection type. The options are VT100, VT100/8bit, PC-ANSI/7bit, **PC ANSI**, VT100+, VT-UTF8 and ASCII.

Flow Control

This item allows you to select the flow control option for Console Redirection. The options are: None, XON/XOFF, and **CTS/RTS**.

Console Connection

This item allows you to decide how Console Redirection is to be connected: either **Direct** or Via Modem.

Continue CR after POST

This item allows you to decide if you want to continue with Console Redirection after the POST routines. The options are On and **Off**.

▶Hardware Monitor

This feature allows the user to monitor system health and review the status of each item as displayed.

Overheat Alarm

This option allows the user to select the CPU Overheat Alarm setting which determines when the CPU OH alarm will be activated to provide warning of possible CPU overheat.

Warning! 1.Any temperature that exceeds the CPU threshold temperature predefined by the CPU manufacturer may result in CPU overheat or system instability. When the CPU temperature reaches this predefined threshold, the CPU and system cooling fans will run at full speed.

2. To avoid possible system overheating, please be sure to provide adequate airflow to your system.

The options are:

- Early Trigger: Select this setting if you want the CPU overheat alarm (including the LED and the buzzer) to be triggered as soon as the CPU temperature reaches the CPU overheat threshold as predefined by the CPU manufacturer.

- **Normal Trigger**: Select this setting if you want the CPU overheat alarm (including the LED and the buzzer) to be triggered when the CPU temperature reaches about 5ºC above the threshold temperature as predefined by the CPU manufacturer to give the CPU and system fans additional time needed for CPU and system cooling. In both the alarms above, please take immediate action as shown below.

CPU Temperature/System Temperature

Note: The following item display current temperature readings for the CPU and the system. These items are displayed for your reference only.

CPU1 Temperature/CPU2 Temperature

The CPU Temperature feature will display the CPU temperature status as detected by the BIOS:

Low – This level is considered as the 'normal' operating state. The CPU temperature is well below the CPU 'Temperature Tolerance'. The motherboard fans and CPU will run normally as configured in the BIOS (Fan Speed Control).

User intervention: No action required.

Medium – The processor is running warmer. This is a 'precautionary' level and generally means that there may be factors contributing to this condition, but the

CPU is still within its normal operating state and below the CPU 'Temperature Tolerance'. The motherboard fans and CPU will run normally as configured in the BIOS. The fans may adjust to a faster speed depending on the Fan Speed Control settings.

User intervention: No action is required. However, consider checking the CPU fans and the chassis ventilation for blockage.

High – The processor is running hot. This is a 'caution' level since the CPU's 'Temperature Tolerance' has been reached (or has been exceeded) and may activate an overheat alarm. The system may shut down if it continues for a long period to prevent damage to the CPU.

User intervention: If the system buzzer and Overheat LED has activated, take action immediately by checking the system fans, chassis ventilation and room temperature to correct any problems.

System Temperature

This item displays the absolute system temperature status as detected by the BIOS:

Fan1-Fan8 Speeds

If the feature of Auto Fan Control is enabled, the BIOS will automatically display the status of the fans indicated in this item.

Fan Speed Control Modes

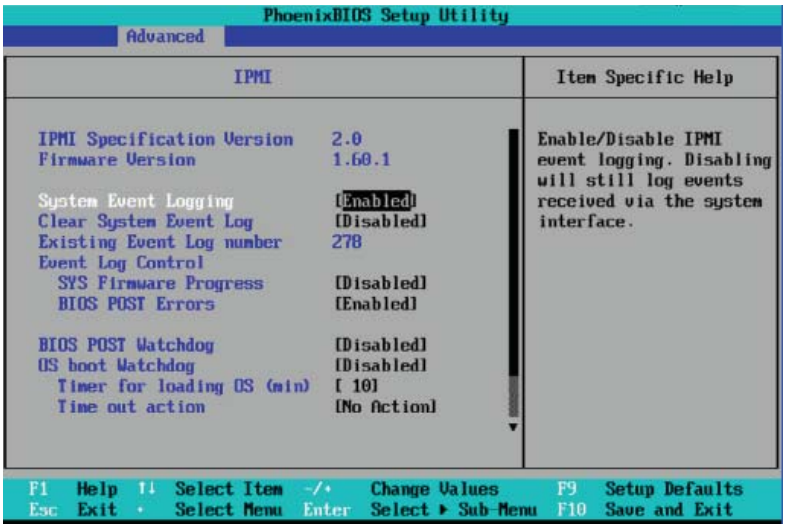
This feature allows the user to decide how the system controls the speeds of the onboard fans. The CPU temperature and the fan speed are correlative. When the CPU on-die temperature increases, the fan speed will also increase, and vise versa. If the option is set to 3-pin fan, the fan speed is controlled by voltage. If the option is set to 4-pin, the fan speed will be controlled by Pulse Width Modulation (PWM). Select 3-pin if your chassis came with 3-pin fan headers. Select 4-pin if your chassis came with 4-pin fan headers. Select Workstation if your system is used as a Workstation. Select Server if your system is used as a Server. Select Disable to disable fan speed control and allow the onboard fans to constantly run at full speed (12V). The Options are: 1. **Disable (running@Full Speed)**, 2. 3-pin (Server), 3. 3-pin (Workstation), 4. 4-pin (Server) and 5. 4-pin (Workstation).

Voltage Monitoring

The following items will be monitored and displayed:

Vcore A/Vcore B, -12V/+12V, P1V5/CPU_VTT/Vbat, +3.3V, 5Vsb/5VDD

▶IPMI (The option is available only when an IPMI card is installed in the system.)


PhoenixBIOS Setup Utility
Advanced
IPMI
Item Specific Help
IPMI Specification Version 2.0
Firmware Version 1.60.1
System Event Logging [Enabled]
Clear System Event Log [Disabled]
Existing Event Log number 278
Event Log Control
SYS Firmware Progress [Disabled]
BIOS POST Errors [Enabled]
BIOS POST Watchdog [Disabled]
OS boot Watchdog [Disabled]
Timer for loading OS (min) [10]
Time out action [No Action]
Enable/Disable IPMI event logging. Disabling will still log events received via the system interface.
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit · Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit

IPMI Specification Version: This item displays the current IPMI Version.

Firmware Version: This item displays the current Firmware Version.

System Event Logging

Select **Enabled** to enable IPMI Event Logging. When this function is set to Disabled, the system will continue to log events received via system interface. The options are **Enabled** and Disabled.

Clear System Event Logging

Enable this function to force the BIOS to clear the system event logs during the next cold boot. The options are Enabled and **Disabled**.

Existing Event Log Number

This item displays the number of the existing event log.

Event Log Control

System Firmware Progress

Enable this function to log POST progress. The options are Enabled and **Disabled**.

BIOS POST Errors

Enable this function to log POST errors. The options are **Enabled** and Disabled.

BIOS POST Watch Dog

Set to Enabled to enable POST Watch Dog. The options are **Enabled** and Disabled.

OS Boot Watch Dog

Set to Enabled to enable OS Boot Watch Dog. The options are Enabled and **Disabled**.

Timer for Loading OS (Minutes)

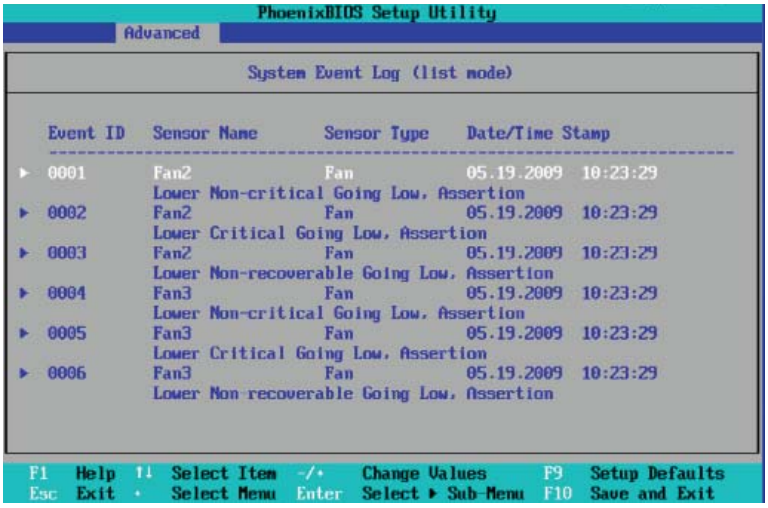
This feature allows the user to set the time value (in minutes) for the previous item: OS Boot Watch Dog by keying-in a desired number in the blank. The default setting is **10** (minutes.) (Please ignore this option when OS Boot Watch Dog is set to Disabled.)

Time Out Option

This feature allows the user to determine what action to take in an event of a system boot failure. The options are **No Action**, Reset, Power Off and Power Cycles.

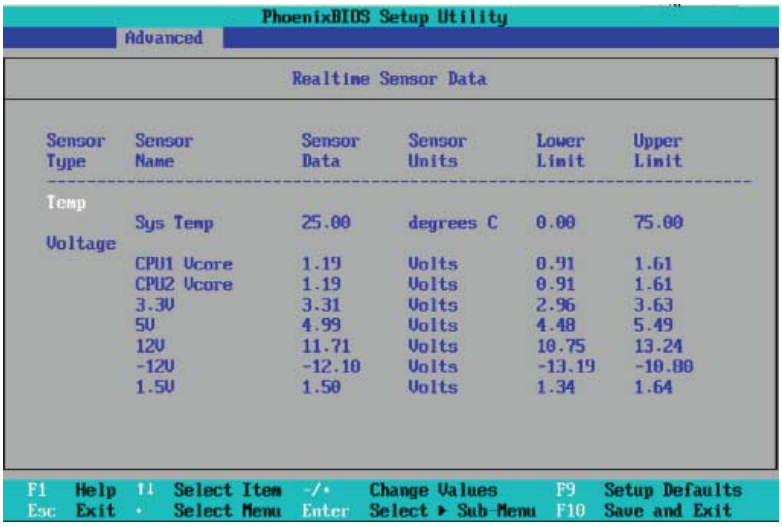
▶System Event Log/System Event Log (List Mode)

These options display the System Event (SEL) Log and System Event (SEL) Log in List Mode. Items include: SEL (System Event Log) Entry Number, SEL Record ID, SEL Record Type, Time Stamp, Generator ID, SEL Message Revision, Sensor Type, Sensor Number, SEL Event Type, Event Description, and SEL Event Data.


PhoenixBIOS Setup Utility
Advanced
System Event Log (list mode)
Event ID Sensor Name Sensor Type Date/Time Stamp
0001 Fan2 Fan 05.19.2009 10:23:29
Lower Non-critical Going Low, Assertion
0002 Fan2 Fan 05.19.2009 10:23:29
Lower Critical Going Low, Assertion
0003 Fan2 Fan 05.19.2009 10:23:29
Lower Non-recoverable Going Low, Assertion
0004 Fan3 Fan 05.19.2009 10:23:29
Lower Non-critical Going Low, Assertion
0005 Fan3 Fan 05.19.2009 10:23:29
Lower Critical Going Low, Assertion
0006 Fan3 Fan 05.19.2009 10:23:29
Lower Non-recoverable Going Low, Assertion
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit

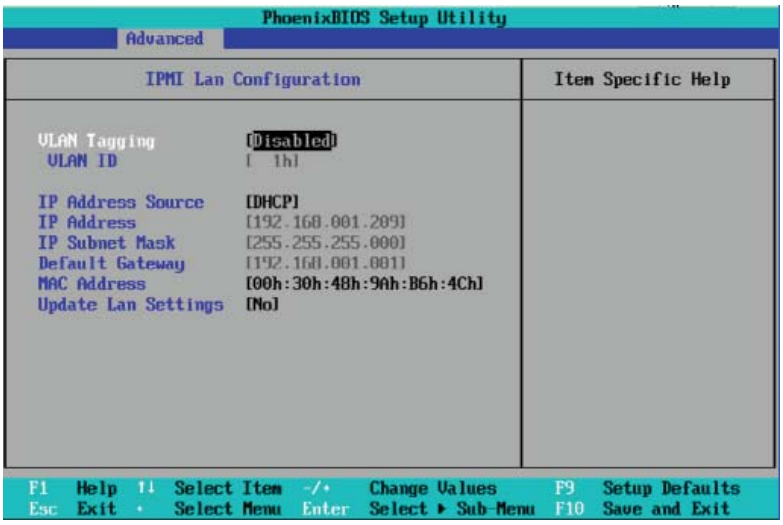
▶Realtime Sensor Data

This feature display information from motherboard sensors, such as temperatures, fan speeds and voltages of various components.


PhoenixBIOS Setup Utility
Advanced
Realtime Sensor Data
Sensor Type
Sensor Name
Sensor Data
Sensor Units
Lower Limit
Upper Limit
Temp
Sys Temp 25.00 degrees C 0.00 75.00
Voltage
CPU1 Vcore 1.19 Volts 0.91 1.61
CPU2 Vcore 1.19 Volts 0.91 1.61
3.3V 3.31 Volts 2.96 3.63
5V 4.99 Volts 4.48 5.49
12V 11.71 Volts 10.75 13.24
-12V -12.10 Volts -13.19 -10.80
1.5V 1.50 Volts 1.34 1.64
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit · Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit

▶IPMI LAN Configuration

The following features allow the user to configure and monitor IPMI LAN settings.


PhoenixBIOS Setup Utility
Advanced
IPMI Lan Configuration
Item Specific Help
VLAN Tagging [Disabled]
VLAN ID [1]
IP Address Source [DHCP]
IP Address [192.168.001.209]
IP Subnet Mask [255.255.255.000]
Default Gateway [192.168.001.001]
MAC Address [00h:30h:48h:9Ah:B6h:4Ch]
Update Lan Settings [No]
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit · Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit

VLAN Tagging

Select Enabled to enable Virtual LAN(s) for IPMI connections and allow the user to configure VLAN settings. The options are Enabled and **Disabled**.

VLAN ID

If VLAN Tagging above is set to Enabled, this item allows the user to change the VLAN ID. If VLAN Tagging is disabled, this item will be ignored by the firmware.

IP Address Source

Select the source of this machine's IP address. If Static is selected, you will need to know and enter manually the IP address of this machine below. If DHCP is selected, the BIOS will search for a DHCP (Dynamic Host Configuration Protocol) server in the network it is attached to, and request the next available IP address. The options are **DHCP** and Static.

IP Address

This item displays the IP address for the IPMI connection detected.

IP Subnet Mask

This item displays the IP Subnet Mask for the IPMI connection detected.

Default Gateway

This item displays the Default Gateway for the IPMI connection detected.

MAC Address

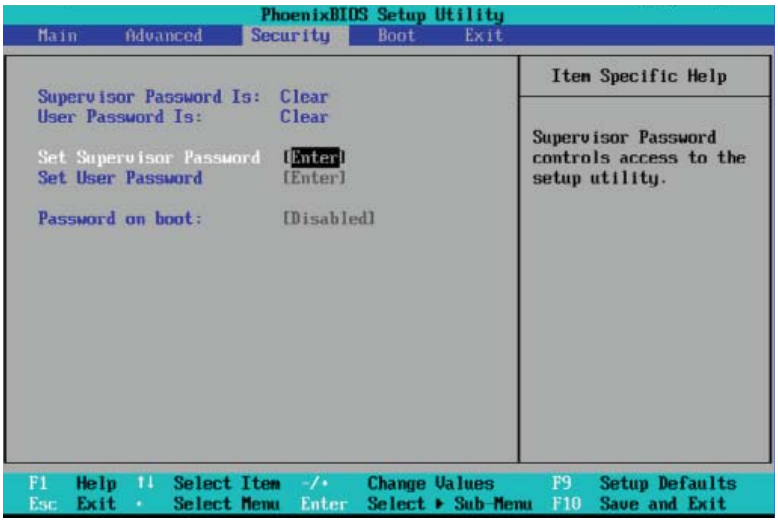
This item displays the MAC Address for the IPMI connection detected.

Update LAN Settings

This item saves the IPMI Lan Configuration settings into memory. If you wish to change any of the settings, select Yes and press F10 to save your settings. Otherwise, leave this setting to its default setting of **No**.

4-5 Security

Choose Security from the Phoenix BIOS Setup Utility menu with the arrow keys. You should see the following display. Security setting options are displayed by highlighting the setting using the arrow keys and pressing <Enter>. All Security BIOS settings are described in this section.


PhoenixBIOS Setup Utility
Main Advanced Security Boot Exit
Item Specific Help
Supervisor Password Is: Clear
User Password Is: Clear
Set Supervisor Password [Enter]
Set User Password [Enter]
Password on boot: [Disabled]
Supervisor Password controls access to the setup utility.
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit · Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit

Supervisor Password Is:

This feature indicates if a supervisor password has been entered to the system. Clear means such a password has not been used, and Set means a supervisor password has been entered.

User Password Is:

This feature indicates if a user password has been entered to the system. Clear means such a password has not been used, and Set means a user password has been entered.

Set Supervisor Password

When the item Set "Supervisor Password" is highlighted, hit the <Enter> key. When prompted, enter the Supervisor's password in the dialogue box to set or to change supervisor's password, which allows access to the BIOS.

Set User Password

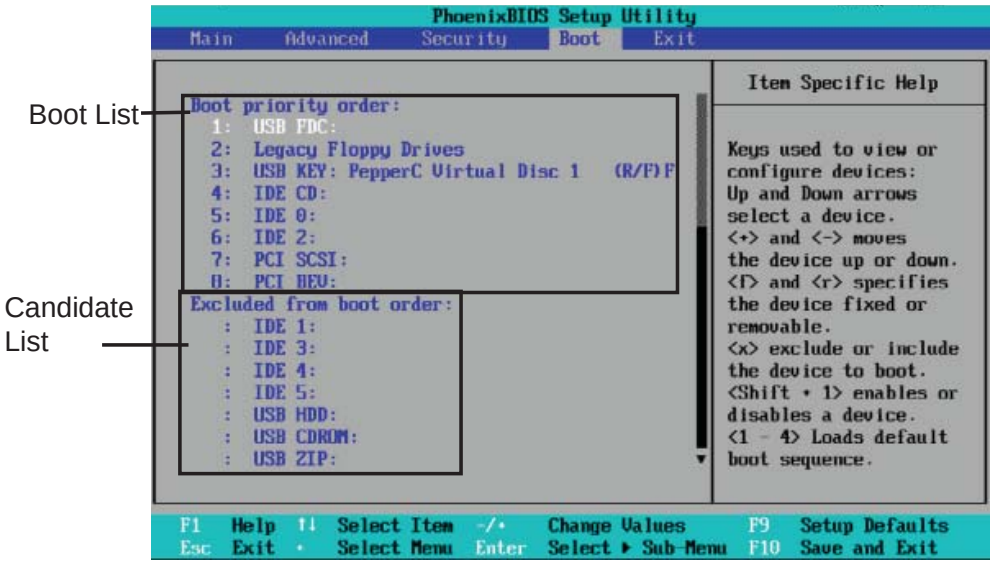
When the item "Set User Password" is highlighted, hit the <Enter> key. When prompted, enter the user's password in the dialogue box to set or to change the user's password, which allows access to the system at boot-up.

Password on Boot

This setting allows you to determine if a password is required for a user to enter the system at system boot. The options are Enabled (password required) and **Disabled** (password not required).

4-6 Boot

Choose Boot from the Phoenix BIOS Setup Utility menu with the arrow keys. You should see the following display. See details on how to change the order and specs of boot devices in the Item Specific Help window. All Boot BIOS settings are described in this section.

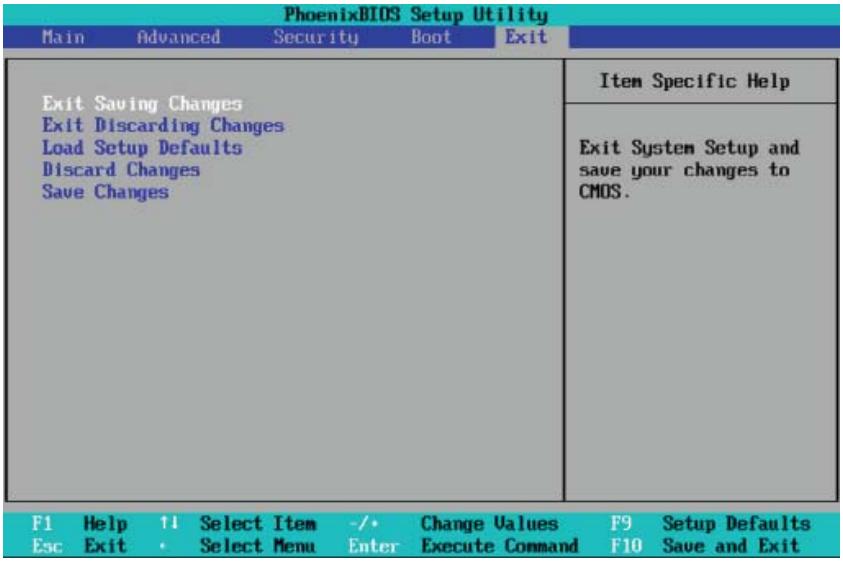

Boot List
Candidate List
PhoenixBIOS Setup Utility
Main
Advanced
Security
Boot
Exit
Boot priority order:
1: USB FDC:
2: Legacy Floppy Drives
3: USB KEY: PepperC Virtual Disc 1 (R/F)F
4: IDE CD:
5: IDE 0:
6: IDE 2:
7: PCI SCSI:
8: PCI NEU:
Excluded from boot order:
: IDE 1:
: IDE 3:
: IDE 4:
: IDE 5:
: USB HDD:
: USB CDROM:
: USB ZIP:
Item Specific Help
Keys used to view or configure devices:
Up and Down arrows select a device.
<+> and <-> moves the device up or down.
<f> and <r> specifies the device fixed or removable.
<x> exclude or include the device to boot.
<Shift + 1> enables or disables a device.
<1 - 4> Loads default boot sequence.
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults
Esc Exit ↔ Select Menu Enter Select ▸ Sub-Menu F10 Save and Exit

Boot Priority Order/Excluded from Boot Orders

The devices included in the boot list section (above) are bootable devices listed in the sequence of boot order as specified. The boot functions for the devices included in the candidate list (above) are currently disabled. Use a <+> key or a <-> key to move the device up or down. Use the <f> key or the <r> key to specify the type of an USB device, either fixed or removable. You can select one item from the boot list and hit the <x> key to remove it from the list of bootable devices (to make its resource available for other bootable devices). Subsequently, you can select an item from the candidate list and hit the <x> key to remove it from the candidate list and put it in the boot list. This item will then become a bootable device. See details on changing the boot priority order of a device in the "Item Specific Help" window.

4-7 Exit

Choose Exit from the Phoenix BIOS Setup Utility menu with the arrow keys. You should see the following display. All Exit BIOS settings are described in this section.



Exit Saving Changes

Highlight this item and hit <Enter> to save any changes you've made and to exit the BIOS Setup utility.

Exit Discarding Changes

Highlight this item and hit <Enter> to exit the BIOS Setup utility without saving any changes you may have made.

Load Setup Defaults

Highlight this item and hit <Enter> to load the default settings for all items in the BIOS Setup. These are the safest settings to use.

Discard Changes

Highlight this item and hit <Enter> to discard (cancel) any changes you've made. You will remain in the Setup utility.

Save Changes

Highlight this item and hit <Enter> to save any changes you've made. You will remain in the Setup utility.

Appendix A

BIOS POST Error Codes

This section lists the POST (Power On Self Test) Error codes for the Phoenix BIOS. POST codes are divided into two categories: recoverable and terminal. The recoverable error codes are listed below.

Recoverable POST Errors

When a recoverable type of error occurs during POST, the BIOS will display an POST code that describes the problem. BIOS may also issue one of the following beep codes:

- 1 long and two short beeps - video configuration error
- 1 repetitive long beep - no memory detected
- 1 continuous beep (with the front panel OH LED on) - System overheat

Notes

Appendix B

Intel HostRAID Setup Guidelines

After all the hardware has been installed, you must first configure Intel's ESB2 SATA RAID before you install the Windows Operating System and other software drivers.

Important Notes to the User:

Note 1: If you do not wish to configure onboard SATA RAID functions, please go directly to Section B-2 and Appendix D for Operating System & Other Software Installation.

Note 2: This chapter describes RAID Configuration Instructions for the Intel ESB2 RAID Controller designed for the Windows OS.

B-1 Introduction to Serial ATA and Parallel ATA

To configure the SATA RAID functions, you must first use the Intel ESB2 SATA RAID Utility program to configure the RAID Level that you desire before installing the Windows XP/2000/2003 operating system and other software drivers. (The necessary drivers are all included on the Supermicro CD that came packaged with your motherboard.) The current version of the ESB2 SATA RAID Utility can only support Windows XP/2000/2003 Operating Systems.

Serial ATA (SATA)

Serial ATA (SATA) is a physical storage interface that uses a single cable with a minimum of four wires to create a point-to-point connection between devices. It is a serial link, which supports transfer rates up to 3.0 Gbps. Because the serial cables used in SATA are thinner than the traditional cables used in Parallel ATA (PATA), SATA systems have better airflow and can be installed in smaller chassis than Parallel ATA. In addition, the cables used in PATA are limited to a length of 40cm, while Serial ATA cables can be up to one meter in length. Overall, SATA provides better functionality than PATA.

Introduction to the Intel ESB2 Serial RAID Controller Hub

Located in the South Bridge of the 5000P chipset, the I/O Controller Hub (ESB2) provides the I/O subsystem with access to the rest of the system. It supports an 1-channel Ultra ATA/100 Bus Master IDE controller (PATA) and six Serial ATA (SATA) ports. The ESB2 supports the following PATA and SATA device configurations: Legacy mode and Native mode.

The Intel HostRAID Configurations

The following types of Intel's HostRAID configurations are supported:

RAID 0 (Data Striping): this writes data in parallel, interleaved ("striped") sections of two hard drives. Data transfer rate is doubled over using a single disk.

RAID1 (Data Mirroring): an identical data image from one drive is copied to another drive. The second drive must be the same size or larger than the first drive.

RAID 10 (Striping & Mirroring): RAID 0 and 1 schemes are combined (without parity information) to get the benefits of both.

RAID 5: both data and parity information are striped and mirrored across three or more hard drives.

The Intel Matrix Storage

The Intel Matrix Storage, supported by the ESB2, allows the user to create RAID 0, RAID 1, RAID 10 and RAID 5 sets by using only six identical hard disk drives. The Intel Matrix Storage Technology creates two partitions on each hard disk drive and generate a virtual RAID 0, RAID 1, RAID 10 and RAID 5 sets. It also allows you the change the HDD partition size without any data.

Configuring BIOS settings for SATA RAID Functions (Native Mode)

1. Press the <Del> key during system bootup to enter the BIOS Setup Utility.

Note: If it is the first time powering on the system, we recommend you load the Optimized Default Settings. If you have already done so, please skip to Step 3.

2. Use the arrow keys to select the "Exit" Settings. Once in the "Exit" settings, Scroll down to select "Load Optimized Default Settings" and press the <Enter> key. Select "OK" to confirm the selection. Press the <Enter> key to load the default settings for the BIOS.

3. Use the arrow keys to select the "Main" section in BIOS.

4. Scroll down to "SATA Controller Mode" and press the <Enter> key to select "Enhanced."

5. Scroll down to "SATA RAID Enabled" and press <Enter>. Then, select "Enabled."

6. Scroll down to "Exit". Select "Exit Saving Changes" from the "Exit" menu. Press the <Enter> key to save the changes and exit the BIOS.

7. Once you've exited the BIOS Utility, the system will re-boot.

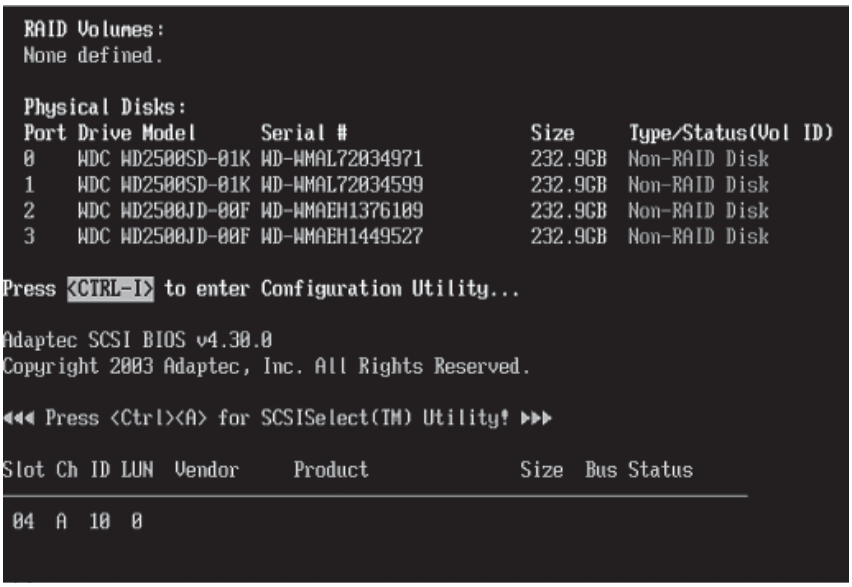
8. During the system boot-up, press the <Ctrl> and <I> keys simultaneously to run the Intel RAID Configuration Utility when prompted by the following message: Press <Ctrl> <I> for the Intel RAID Configuration Utility.

Note: The Intel RAID Configuration Utility is only available for systems with two or more drives installed. The Intel RAID Utility screen will not display in systems with one drive installed.

Using the Intel ESB2 SATA RAID Utility Program

Creating, Deleting and Resetting RAID Volumes

1. After the system exits from the BIOS Setup Utility, the system will automatically reboot. The following screen appears after Power-On Self Test.

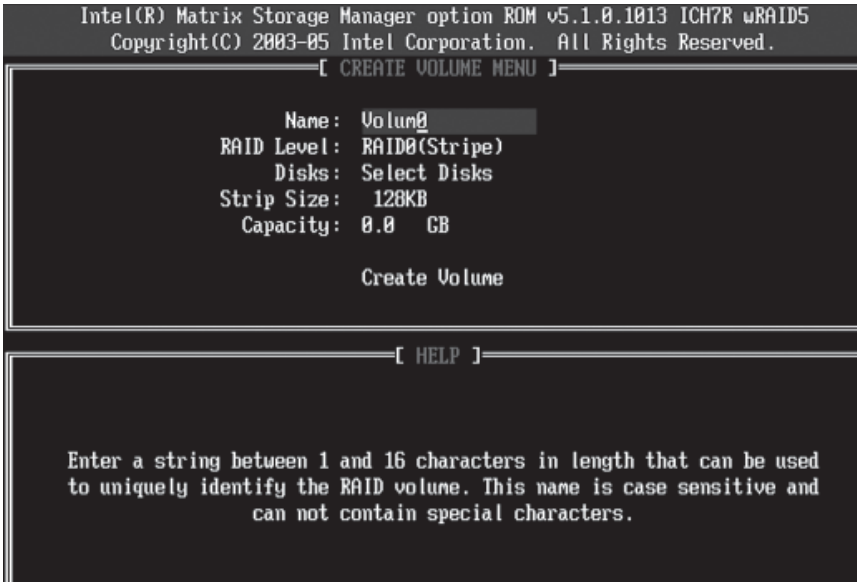

RAID Volumes:
None defined.
Physical Disks:
Port Drive Model Serial # Size Type/Status(Vol ID)
0 WDC WD2500SD-01K WD-WMAL72034971 232.9GB Non-RAID Disk
1 WDC WD2500SD-01K WD-WMAL72034599 232.9GB Non-RAID Disk
2 WDC WD2500JD-00F WD-WMAEH1376109 232.9GB Non-RAID Disk
3 WDC WD2500JD-00F WD-WMAEH1449527 232.9GB Non-RAID Disk
Press <CTRL-I> to enter Configuration Utility...
Adaptec SCSI BIOS v4.30.0
Copyright 2003 Adaptec, Inc. All Rights Reserved.
<<< Press <Ctrl><A> for SCSISelect(TM) Utility! >>>
Slot Ch ID LUN Vendor Product Size Bus Status
04 A 10 0

2. When you see the above screen, press the <Ctrl> and the <I> keys simultaneously to have the main menu of the SATA RAID Utility appear:

Note: All graphics and screen shots shown in the manual are for reference only. The screen shots shown in the manual do not imply Supernicro's endorsement or non-endorsement on any 3rd party's product. Your screens may or many not look exactly the same as the graphics shown in this manual.

Creating a RAID 0 Volume

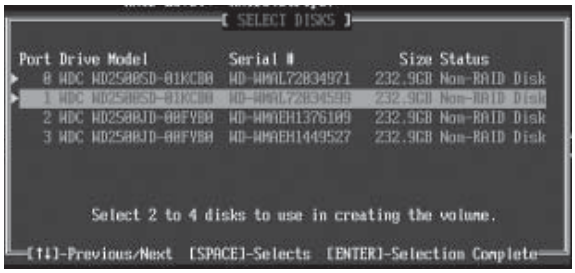
1. Select "Create RAID Volume" from the main menu and press the <Enter> key. The following screen will appear:


Intel(R) Matrix Storage Manager option ROM v5.1.0.1013 ICH7R wRAID5
Copyright(C) 2003-05 Intel Corporation. All Rights Reserved.
[CREATE VOLUME MENU]
Name: Volum0
RAID Level: RAID0(Stripe)
Disks: Select Disks
Strip Size: 128KB
Capacity: 0.0 GB
Create Volume
[HELP]
Enter a string between 1 and 16 characters in length that can be used to uniquely identify the RAID volume. This name is case sensitive and can not contain special characters.

2. Specify a name for the RAID 0 set and press the <Tab> key or the <Enter> key to go to the next field. (You can use the <Esc> key to select the previous menu.)

3. When RAID Level item is highlighted, press the <Up Arrow>, <Down Arrow> keys to select RAID 0 (Stripe) and hit <Enter>.

4. When the Disks item is highlighted, press <Enter> to select the HDD to configure as RAID. The following pop-up screen displays: (See the note on Page B-3)


[SELECT DISKS]
Port Drive Model Serial # Size Status
0 WDC WD2500SD-01KCB0 WD-WMAL72034971 232.9GB Non-RAID Disk
1 WDC WD2500SD-01KCB0 WD-WMAL72034598 232.9GB Non-RAID Disk
2 WDC WD2500JD-00FYB0 WD-WMAEH1376109 232.9GB Non-RAID Disk
3 WDC WD2500JD-00FYB0 WD-WMAEH1449527 232.9GB Non-RAID Disk
Select 2 to 4 disks to use in creating the volume.
[↑↓]-Previous/Next [SPACE]-Selects [ENTER]-Selection Complete

5. Use the <Up Arrow>, <Down Arrow> keys to highlight a drive and press <Space> to select it. A triangle appears to confirm the selection of the drive.

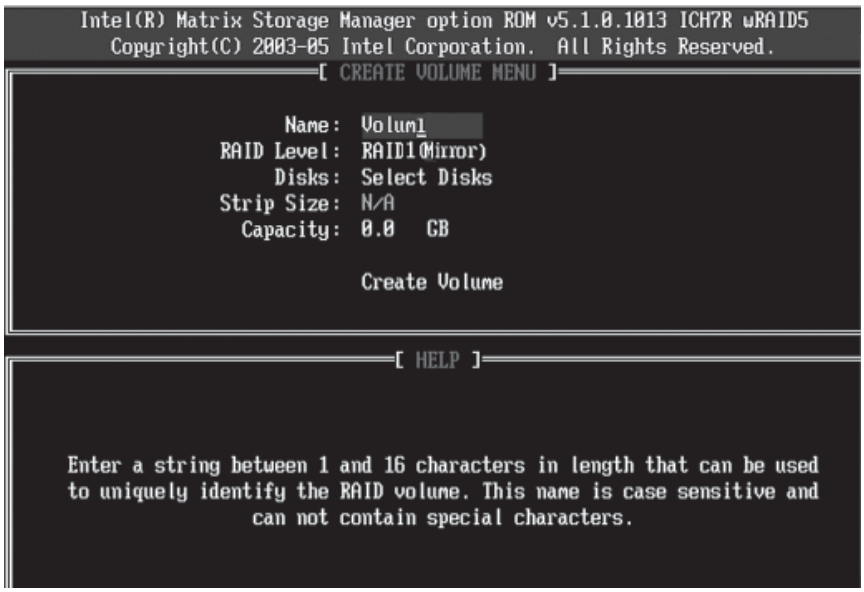
6. Use the <Up Arrow>, <Down Arrow> keys to select the stripe size, ranging from 4 KB to 128 KB for the RAID 0 array, and hit <Enter>. (Note: For a server, please use a lower stripe size, and for a multimedia system, use a higher stripe size. The default stripe size is 128 KB.)

7. Press <Enter> when the Create Volume item is highlighted. A warning message displays.

8. When asked "Are you sure you want to create this volume (Y/N), press "Y" to create the RAID volume, or type "N" to go back to the Create Volume menu.

Creating a RAID 1 Volume

1. Select "Create RAID Volume" from the main menu and press the <Enter> key. The following screen will appear:


Intel(R) Matrix Storage Manager option ROM v5.1.0.1013 ICH7R wRAID5
Copyright(C) 2003-05 Intel Corporation. All Rights Reserved.
[CREATE VOLUME MENU]
Name: Volum1
RAID Level: RAID1(Mirror)
Disks: Select Disks
Strip Size: N/A
Capacity: 0.0 GB
Create Volume
[HELP]
Enter a string between 1 and 16 characters in length that can be used to uniquely identify the RAID volume. This name is case sensitive and can not contain special characters.

2. Specify a name for the RAID 1 set and press the <Tab> key or the <Enter> key to go to the next field. (You can use the <Esc> key to select the previous menu.)

3. When RAID Level item is highlighted, press the <Up Arrow>, <Down Arrow> keys to select RAID 1 (Mirror) and hit <Enter>.

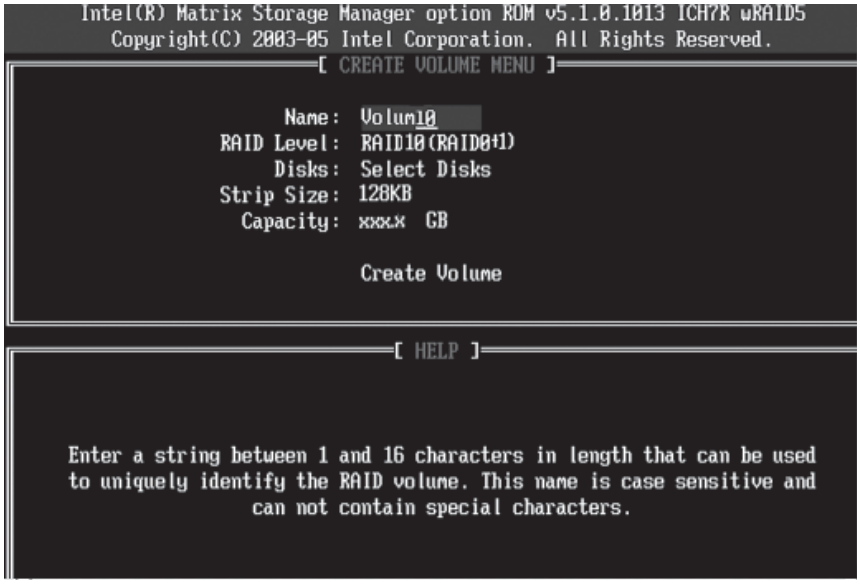
4. When the Capacity item is highlighted, enter your RAID volume capacity and hit <Enter>. The default setting is the maximum capacity allowed.

5. Press <Enter> when the Create Volume item is highlighted. A warning message displays.

6. When asked "Are you sure you want to create this volume (Y/N), press "Y" to create the RAID volume, or type "N" to go back to the Create Volume menu.

Creating a RAID 10 (RAID 1+ RAID 0)

1. Select "Create RAID Volume" from the main menu and press the <Enter> key. The following screen will appear:


Intel(R) Matrix Storage Manager option ROM v5.1.0.1013 ICH7R wRAID5
Copyright(C) 2003-05 Intel Corporation. All Rights Reserved.
[CREATE VOLUME MENU]
Name: Volum10
RAID Level: RAID10(RAID0+1)
Disks: Select Disks
Strip Size: 128KB
Capacity: xxx.x GB
Create Volume
[HELP]
Enter a string between 1 and 16 characters in length that can be used to uniquely identify the RAID volume. This name is case sensitive and can not contain special characters.

2. Specify a name for the RAID 10 set and press <Enter>.

3. When RAID Level item is highlighted, use the <Up Arrow>, <Down Arrow> keys to select RAID 10 (RAID1 + RAID0) and hit <Enter>.

4. When the Stripe Size is highlighted, use the <Up Arrow>, <Down Arrow> keys to select the stripe size from 4 KB to 128 KB for your RAID 10 and hit <Enter>. The default setting is 64 KB. (Note: For a server, please use a lower stripe size, and for a multimedia system, use a higher stripe size.)

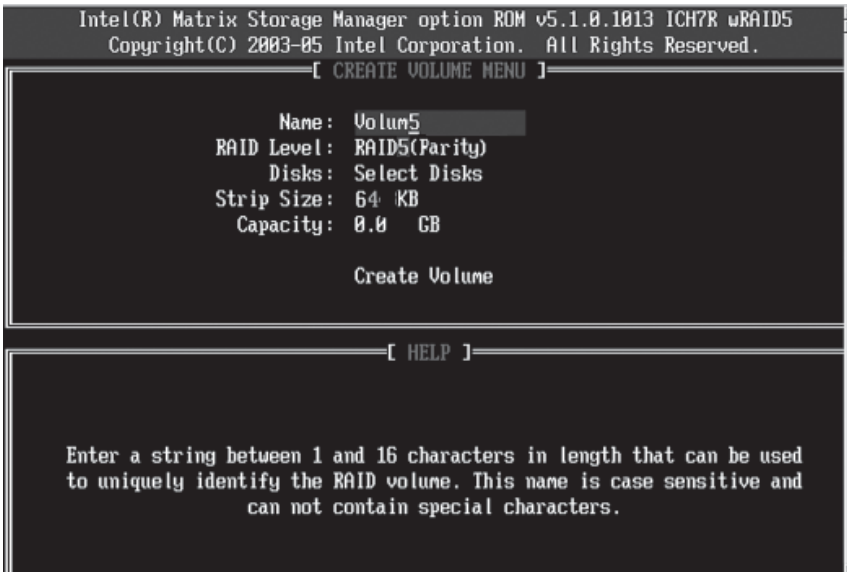
5. When the RAID Volume Capacity item is highlighted, enter your RAID volume capacity and hit <Enter>. The default setting is the maximum capacity allowed.

6. Press <Enter> when the Create Volume item is highlighted. A warning message displays.

7. When asked "Are you sure you want to create this volume (Y/N), press "Y" to create the RAID volume, or type "N" to go back to the Create Volume menu.

Creating a RAID 5 Set (Parity):

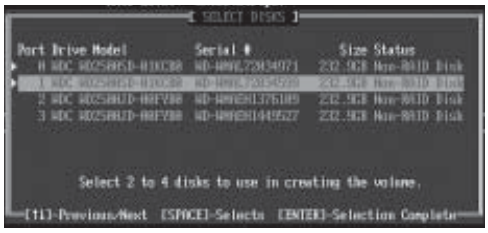
1. Select "Create RAID Volume" from the main menu and press the <Enter> key. The following screen will appear:


Intel(R) Matrix Storage Manager option ROM v5.1.0.1013 ICH7R wRAID5
Copyright(C) 2003-05 Intel Corporation. All Rights Reserved.
[CREATE VOLUME MENU]
Name: Volum5
RAID Level: RAID5(Parity)
Disks: Select Disks
Strip Size: 64 KB
Capacity: 0.0 GB
Create Volume
[HELP]
Enter a string between 1 and 16 characters in length that can be used to uniquely identify the RAID volume. This name is case sensitive and can not contain special characters.

2. Specify a name for the RAID 5 set and press <Enter>.

3. When the Raid Level is highlighted, use the <Up Arrow>, <Down Arrow> keys to select RAID 5 (Parity) and hit <Enter>.

4. When the Disk item is highlighted, press <Enter> to select the HDD to configure as RAID. The following pop-up screen displays: (See the note on Page B-3.)


[SELECT DISKS]
Port Drive Model Serial # Size Status
Select 2 to 4 disks to use in creating the volume.
[↑↓]-Previous/Next [SPACE]-Selects [ENTER]-Selection Complete

5. Use the <Up Arrow>, <Down Arrow> keys to highlight a drive and press <Space> to select it. A triangle appears to confirm the selection of the drive.

6. Use the <Up Arrow>, <Down Arrow> keys to select the stripe size, ranging from 4 KB to 128 KB for the RAID 5 array, and hit <Enter>. (Note: For a server, please use a lower stripe size, and for a multimedia system, use a higher stripe size. The default stripe size is 128 KB.)

7. Enter your desired RAID volume capacity and press <Enter> when the capacity item is highlighted. The default setting is the maximum capacity allowed.

8 Press Enter when the Create Volume item is highlighted. A warning message displays.

9. When asked "Are you sure you want to create this volume (Y/N), press "Y" to create the RAID volume, or type "N" to go back to the Create Volume menu.

Deleting RAID Volume

Warning: Be sure to back up your data before deleting a RAID set. You will lose all data on the disk drives when deleting a RAID set.)

1. From the main menu, select item2-Delete RAID Volume, and press <Enter>.

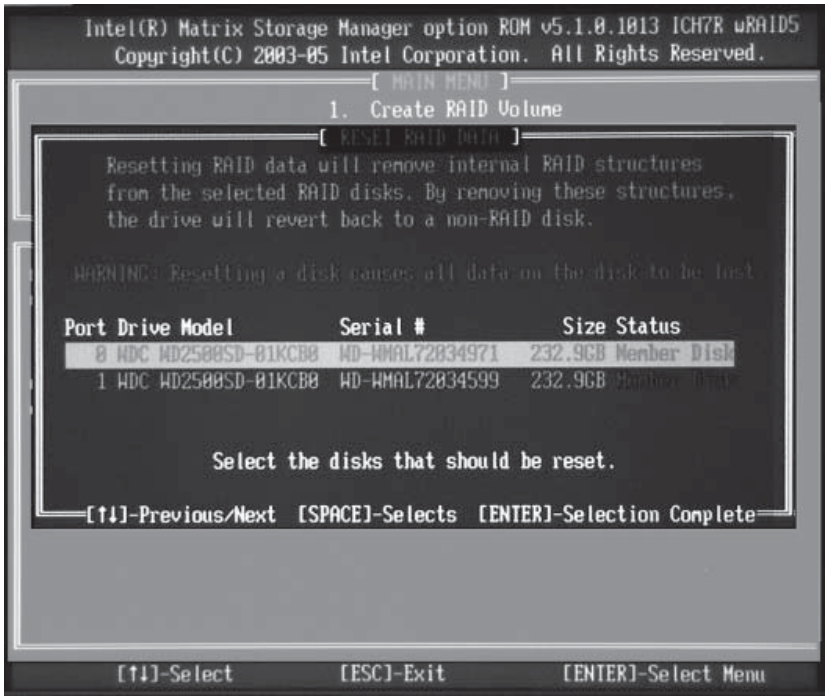
2. Use the <Up Arrow>, <Down Arrow> keys to select the RAID set you want to delete and press <Del>. A Warning message displays.

3. When asked "Are you sure you want to delete this volume (Y/N), press "Y" to delete the RAID volume, or type "N" to go back to the Delete Volume menu.

Resetting to Non-RAID Settings and Resetting a RAID HDD

Warning: Be cautious when you reset a RAID volume HDD to non-RAID or Resetting a RAID HDD. Resetting a RAID volume or a RAID HDD will reformat the HDD and delete the internal RAID structure on the drive.

1. From the main menu, select item3-Reset Disks to Non- RAID, and press <Enter>. The following screen will appear:


Intel(R) Matrix Storage Manager option ROM v5.1.0.1013 ICH7R wRAID5
Copyright(C) 2003-05 Intel Corporation. All Rights Reserved.
[MAIN MENU]
1. Create RAID Volume
[RESET RAID DATA]
Resetting RAID data will remove internal RAID structures
from the selected RAID disks. By removing these structures,
the drive will revert back to a non-RAID disk.
WARNING: Resetting a disk causes all data on the disk to be lost
Port Drive Model Serial # Size Status
0 WDC WD2500SD-01KCB0 WD-WMAL72034971 232.9GB Member Disk
1 WDC WD2500SD-01KCB0 WD-WMAL72034599 232.9GB
Select the disks that should be reset.
[↑↓]-Previous/Next [SPACE]-Selects [ENTER]-Selection Complete
[↑↓]-Select [ESC]-Exit [ENTER]-Select Menu

2. Use the <Up Arrow>, <Down Arrow> keys to highlight the RAID set drive to reset and press <Space> to select.

3. Press <Enter> to reset the RAID set drive. A Warning message displays.

4. Press "Y" to reset the drive, or type "N" to go back to the main menu.

Exiting the Intel Matrix Storage Manager Utility

1. From the main menu, select item4-Exit, and press <Enter>. A warning message will appear.

2. Press "Y" to reset the drive, or type "N" to go back to the main menu.

B-2 Installing the Windows XP/2000/2003 OS with RAID Functions

Installing a New Operating System-the Windows XP/2000/2003 OS

1. Insert Microsoft's Windows XP/2000/2003 Setup CD in the CD Driver, and the system will start booting up from CD.

2. Press the <F6> key when the message-" Press F6 if you need to install a third party SCSI or RAID driver" displays.

3. When the Windows XP/2000/2003 Setup screen appears, press "S" to specify additional device(s).

4. Insert the driver diskette-"Intel AA RAID XP/2000/2003 Driver for ESB2 into Drive A: and press the <Enter> key.

5. Choose the Intel(R) ESB2 *SATA RAID Controller* from the list indicated in the XP/2000/2003 Setup Screen, and press the <Enter> key.

6. Press the <Enter> key to continue the installation process. (If you need to specify any additional devices to be installed, do it at this time.) Once all devices are specified, press the <Enter> key to continue with the installation.

7. From the Windows XP/2000/2003 Setup screen, press the <Enter> key. The XP/2000/2003 Setup will automatically load all device files and then, continue the Windows XP/2000/2003 installation.

8. After Windows XP/2000/2003 Installation is completed, the system will automatically reboot.

Note: the current version of the ESB2 SATA RAID Utility can only support the Windows XP/2000/2003 Operating System.

Appendix C

Adaptec HostRAID Setup Guidelines

After all the hardware components have been installed, you must configure the Adaptec Embedded Serial ATA RAID and then install the Windows operating system. All necessary drivers are included on the Supermicro bootable CDs that came with your motherboard.

Note: The following section provides information on the Adaptec SATA RAID Driver based on the Intel Enterprise South Bridge 2 (ESB2) Controller.

C-1 Introduction to the Adaptec SATA RAID Driver

Serial ATA (SATA)

Serial ATA(SATA) is a physical storage interface. It uses a single cable with a minimum of four wires to create a point-to-point connection between devices. It is a serial link which supports SATA Transfer rates up to 3.0 Gbps. Because the serial cables used in SATA are thinner than the traditional cables used in Parallel ATA(PATA), SATA systems have better airflow and can be installed in smaller chassis than Parallel ATA. In addition, the cables used in PATA can only extend to 40cm long, while Serial ATA cables can extend up to one meter. Overall, Serial ATA provides better functionality than Parallel ATA.

Introduction to the Intel ESB2 I/O Controller Hub

Located in the South Bridge of the Intel 5400P Chipset, the ESB2 I/O Controller Hub provides the I/O subsystem with access to the rest of the system. It supports 1-channel Ultra ATA/100 Bus Master IDE controller (PATA) and one Adaptec's Serial ATA (SATA) Host Controller, which support up to six Serial ATA drives, up to two RAID volumes and up to four drives in RAID Configurations. (See the table below for details.)

* Adaptec's SATA HostRAID Controller Firmware supports:	
Drives supported	Six
Number of RAID Volumes supported	Two
Total Drives in RAID Configurations	Four
Examples of Valid RAID Configurations:	
Two drives of RAID 1 + two drives of RAID 0	
Two drives of RAID 1 + two drives of RAID 1	
Three drives of RAID 0	
Four drives of RAID 0	
Examples of Invalid RAID Configurations:	
Three drives of RAID 0 + two drives of RAID 1	
(***Note**: this table is applicable to Adaptec's HostRAID Controller Firmware only.)	

Configuring the Adaptec SATA RAID for Operating Systems (--Windows, Red Hat & SuSe, Linux)

1. Press the <Del> key during system bootup to enter the BIOS Setup Utility.

Note: If it is the first time powering on the system, we recommend you load the Optimized Default Settings. If you have already done so, please skip to Step 3.

2. Use the arrow keys to select the "Exit" Settings. Once in the "Exit" settings, Scroll down to select "Load Optimized Default Settings" and press the <Enter> key. Select "OK" to confirm the selection. Press the <Enter> key to load the default settings for the BIOS.

3. Use the arrow keys to select the "Main" section in BIOS.

4. Scroll down to "SATA Control Mode" and press the <Enter> key to select "Enhanced"

5. Scroll down to "SATA RAID Enabled" and press <Enter>. Then, select "Enabled."

6. Scroll down to "ICH RAID Codebase" and select "Adaptec". Then press <Enter>. (For ICH RAID Codebase: Change the setting from Intel to Adaptec.)

7. Scroll down to "Exit". Select "Exit Saving Changes" from the "Exit" menu. Press the <Enter> key to save the changes and exit the BIOS.

8. Once you've exited the BIOS Utility, the system will re-boot.

9. During the system boot-up, press the <Ctrl> and <A> keys simultaneously to run the Intel RAID Configuration Utility when prompted by the following message: Press <Ctrl> <A> for Intel RAID Configuration Utility.

The Adaptec Embedded SATA HostRAID Driver

The Adaptec Embedded Serial ATA RAID Controller adds SATA/RAID functionality and performance enhancements to a motherboard. RAID striping (RAID 0) allows data to be written across multiple drives, greatly improving hard disk I/O performance. RAID mirroring (RAID 1) allows data to be simultaneously written to two drives, improving data security even if a single hard disk fails. A Stripe of Mirrors (RAID 10) provides multiple RAID 1 mirrors and a RAID 0 stripe, maximizing data security and system efficiency. By incorporating the Adaptec Embedded Serial ATA into the motherboard design, Supermicro's X7DWU offers the user the benefits of SATARAID without the high costs associated with hardware RAID applications.

Using the Adaptec RAID Configuration Utility (ARC)

The Adaptec RAID Configuration Utility, an embedded BIOS Utility, includes the following:

Array Configuration Utility: Use this utility to create, configure and manage arrays.

Disk Utilities: Use this option to format or verify disks.

To run the Adaptec RAID Configuration Utility, you will need to do the following:

1. Enable RAID functions in the system BIOS (refer to Chapter 4 for System BIOS Configurations).

2. Press the <Ctrl> and <A> keys simultaneously when prompted to do so during system boot. (Refer to the previous page for detailed instructions.)

Using the Array Configuration Utility (ACU)

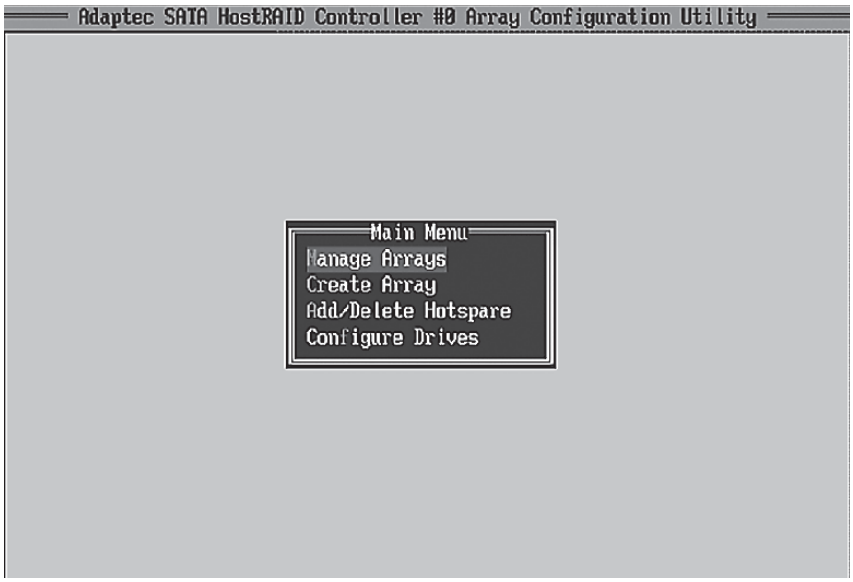
When you press <Ctrl> and <A> keys simultaneously at the prompt during system bootup, the main menu will appear.

Note: To select an option, use the arrow keys to highlight the item and then press the <Enter> key to select it. To return to the previous menu, press the <ESC> key. Press the <Insert> key to select a drive. When a drive is highlighted (selected), press the <Delete> key to de-select it.

Managing Arrays

Select this option to view array properties, and configure array settings.

To select this option, using the arrow keys and the <enter> key, select "Managing Arrays" from the main menu as shown above.



Configuring Disk Drives

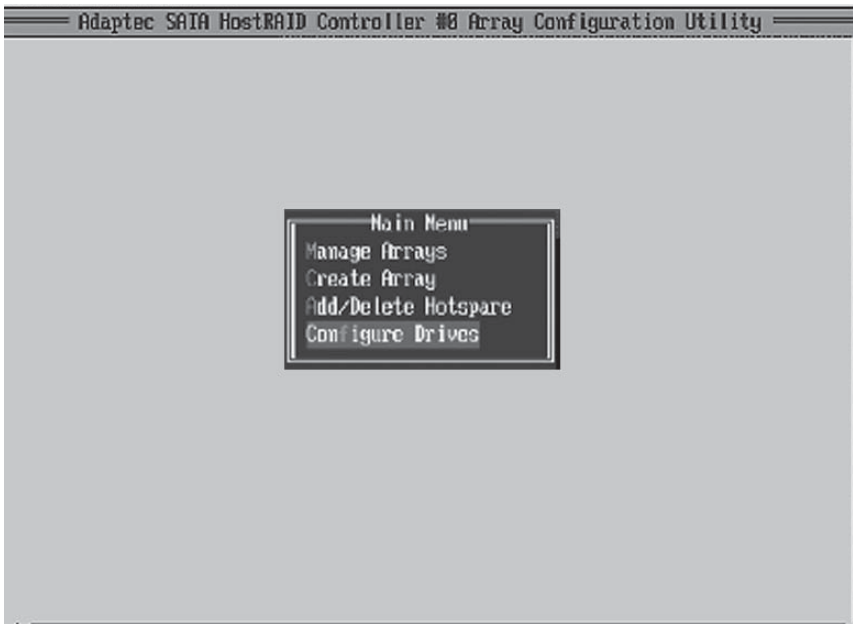
You may need to configure a disk drive before you can use it.

Caution: Configuring a disk may overwrite the partition table on the disk and may make any data on the disk inaccessible. If the drive is used in an array, you may not be able to use the array again.

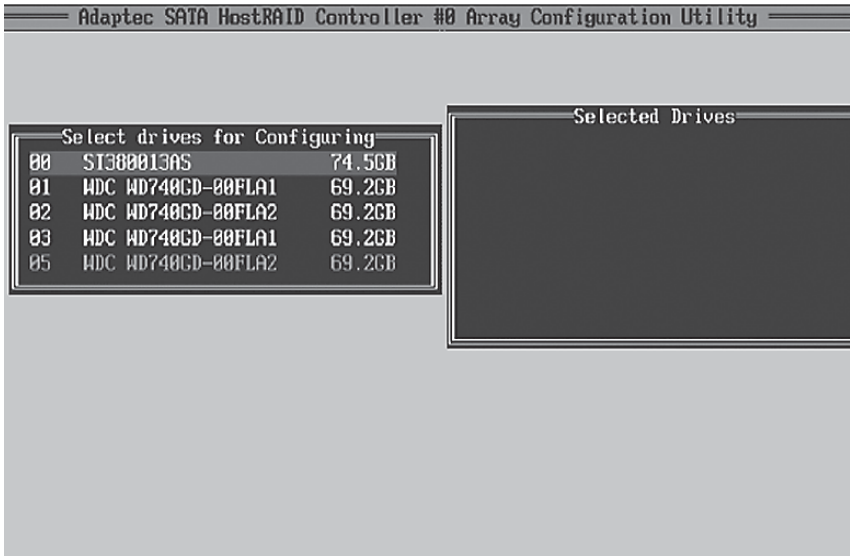
Do not configure a disk that is part of a boot array. To determine which disks are associated with a particular array, please refer to Viewing Array Properties.

To configure a disk drive

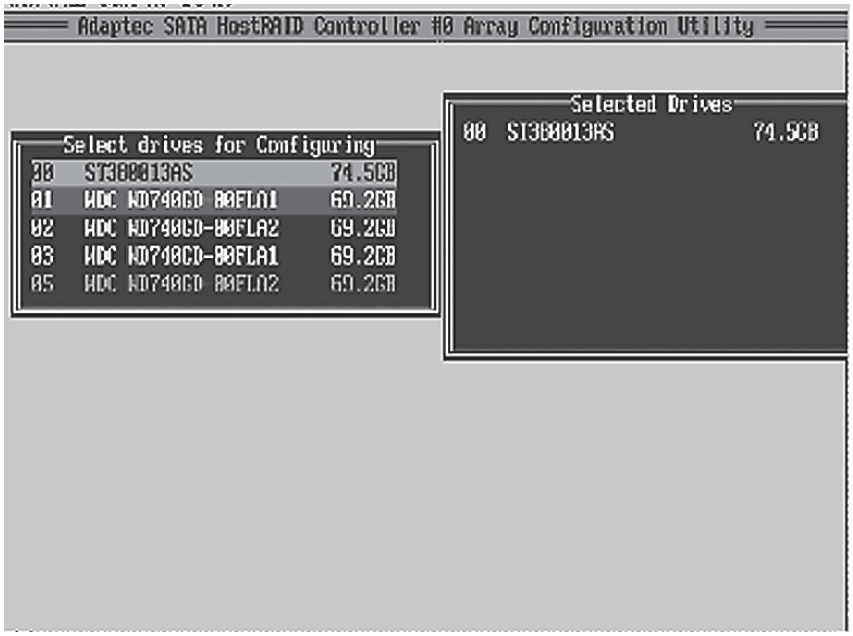
1. From the main menu (shown on Page C-4), select Configure Drives and hit <Enter> (as shown below.)



2. From the "Select Drives for Configuring" List (shown below,) select the drives you want to configure and press <Insert>.

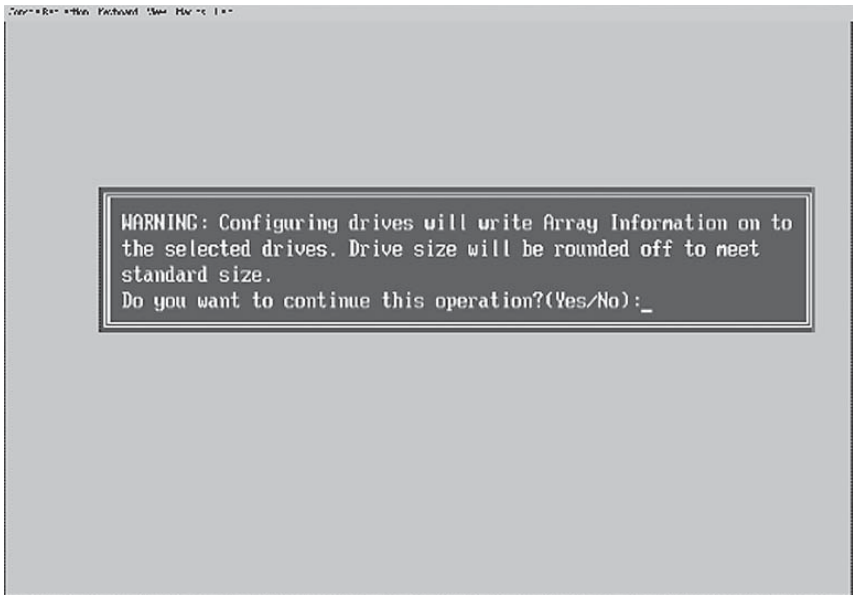

Adaptec SATA HostRAID Controller #0 Array Configuration Utility
Select drives for Configuring
00 ST380013AS 74.5GB
01 WDC WD740GD-00FLA1 69.2GB
02 WDC WD740GD-00FLA2 69.2GB
03 WDC WD740GD-00FLA1 69.2GB
05 WDC WD740GD-00FLA2 69.2GB
Selected Drives

3. The drive you've selected will appear in the "Selected Drives Dialog Box" on the right (as shown below.) Repeat the same steps until all drives that you want to configure appear in the selected drives box.


Adaptec SATA HostRAID Controller #0 Array Configuration Utility
Select drives for Configuring
00 ST380013AS 74.5GB
01 WDC WD740GD-00FLA1 69.2GB
02 WDC WD740GD-00FLA2 69.2GB
03 WDC WD740GD-00FLA1 69.2GB
05 WDC WD740GD-00FLA2 69.2GB
Selected Drives
00 ST380013AS 74.5GB

4. Once both drives display in the selected drive box, press <Enter.>

5. Read the warning message as shown in the screen below.


WARNING: Configuring drives will write Array Information on to
the selected drives. Drive size will be rounded off to meet
standard size.
Do you want to continue this operation?(Yes/No):_

6. Make sure that you have selected the correct disk drives to configure. If correct, type Y to continue.

Creating Arrays

Before you create arrays, make sure that the disks for the array are connected and installed in your system. Disks with no usable space, or are not initialized or formatted are shown in gray and cannot be used.

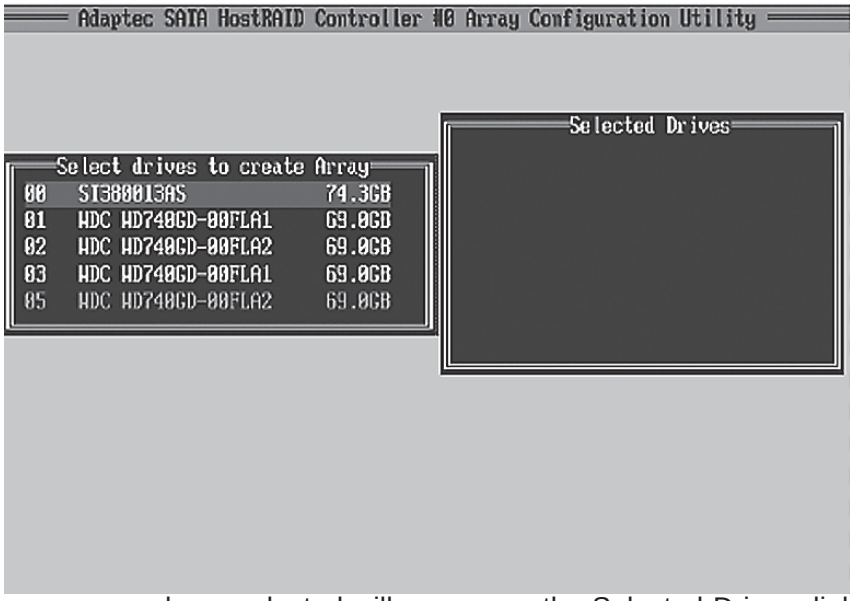
Note: It is recommended that you configure devices before you create arrays.

To create an array

1. From the main menu (shown on page C-4), select Create Array.

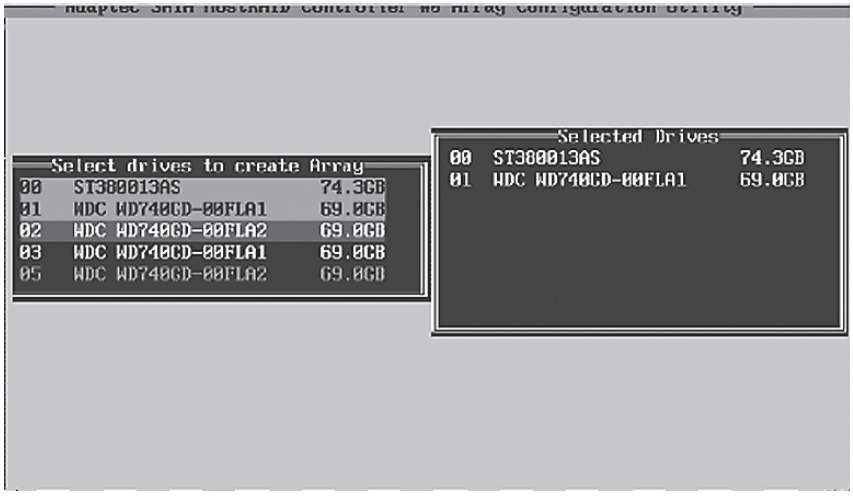
2. Select the disks for the new array and press Insert (as the screen shown below).

Note: To de-select any disk, highlight the disk and press <Delete>.


Adaptec SATA HostRAID Controller #0 Array Configuration Utility
Selected Drives
Select drives to create Array
00 ST380013AS 74.3GB
01 WDC WD740GD-00FLA1 69.0GB
02 WDC WD740GD-00FLA2 69.0GB
03 WDC WD740GD-00FLA1 69.0GB
05 WDC WD740GD-00FLA2 69.0GB

3. The arrays you have selected will appear on the Selected Drives dialog box on the right (as shown below.)

4 Press Enter when both disks for the new array are selected. The Array Properties menu displays.



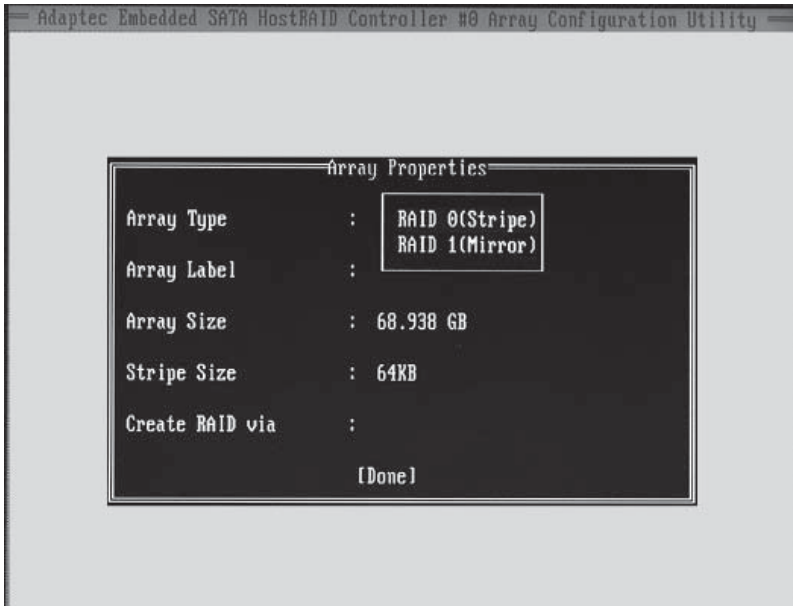
To Assign Array Properties

Once a new array is completed, you can assign properties to the array.

Caution: Once the array is created and its properties are assigned, and you cannot change the array properties using this utility.

To assign properties to the new array

1. In the Array Properties menu (as shown in the screen below), select an array type and press Enter. Only the available array types will be displayed on the screen. (RAID 0 or RAID 1 requires two drives.)



2. Under the item "Arrays Label", type in a label and press <Enter>. **Note**: The label shall not be more than 15 characters.

3. For RAID 0, select the desired stripe size. (Note: Available stripe sizes are 16, 32, and 64 KB. 64K is default. Please do not change the default setting.)

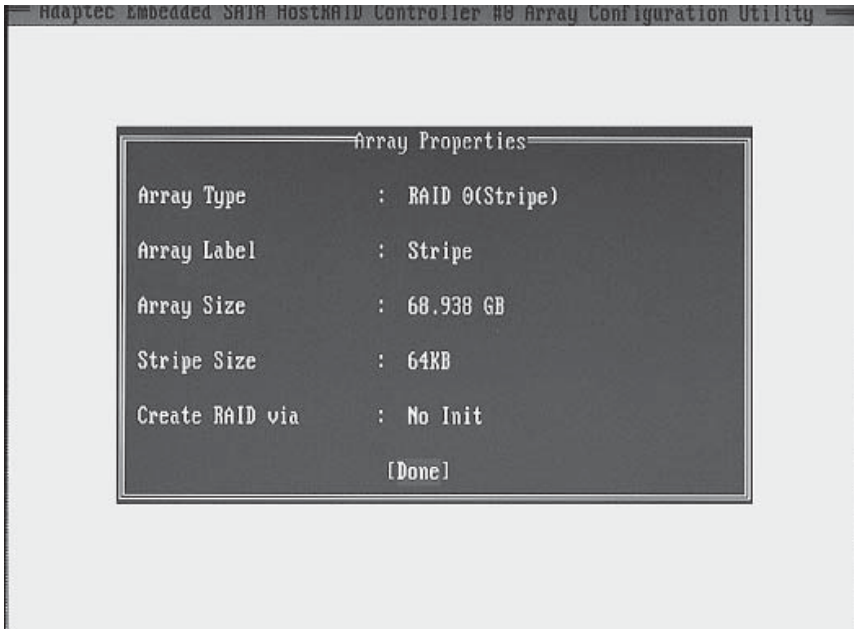
4. The item: "Create RAID via" allows you to select between the different ways of creating methods for RAID 0 and RAID 1.

The following table gives examples of when each is appropriate.

*** Adaptec's SATA HostRAID Controller Firmware supports:**	
Drives supported	Six
Number of RAID Volumes supported	Two
Total Drives in RAID Configurations	Four
Examples of Valid RAID Configurations:	
Two drives of RAID 1 + two drives of RAID 0	
Two drives of RAID 1 + two drives of RAID 1	
Three drives of RAID 0	
Four drives of RAID 0	
Examples of Invalid RAID Configurations:	
Three drives of RAID 0 + two drives of RAID 1	
(***Note**: this table is applicable to Adaptec's HostRAID Controller Firmware only.)	

Note: If you select Migrate for RAID 0, or Build for RAID 1, you will be asked to select the source drive. The contents of the source drive will be preserved. However, the data on the new drive will be lost.

5. When you are finished, press <Done> (as the screen shown below).


Adaptec Embedded SATA HostRAID Controller #0 Array Configuration Utility
Array Properties
Array Type : RAID 0(Stripe)
Array Label : Stripe
Array Size : 68.938 GB
Stripe Size : 64KB
Create RAID via : No Init
[Done]

Notes:

Before adding a new drive to an array, be sure to back up any data stored on the new drive; otherwise, all data will be lost.

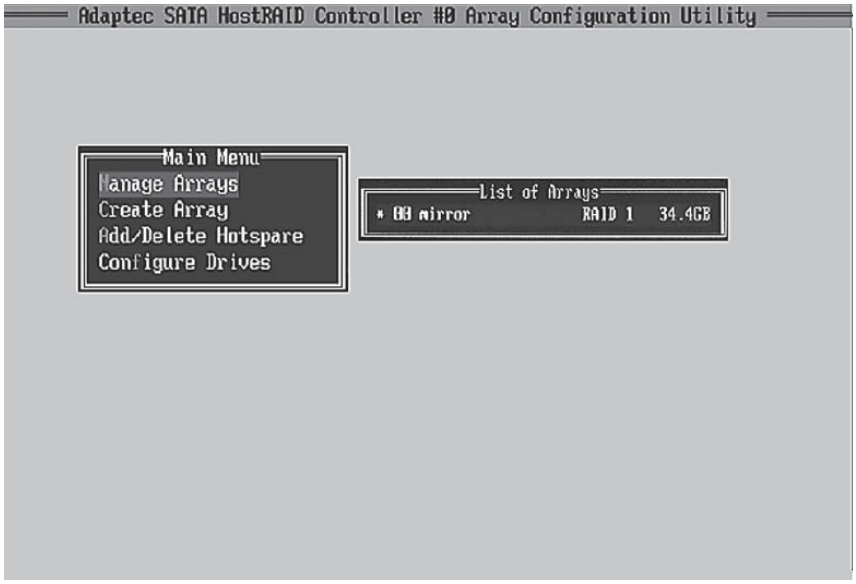
1. If you stop the Build or Clear process on a RAID 1, you can restart it by pressing <Ctrl> and <R>.
2. If you've used the Quick Init option to create a RAID1, it may return some data mis-comparison when you run a consistency check at a later time. This is normal.
3. The Adaptec Host RAID allows you to use drives of different sizes in a RAID. However, you can only select a smaller drive as the source or first drive during a build operation.
4. When migrating from single volume to RAID 0, migrating from a larger drive to a smaller drive is allowed. However, the destination drive must be at least half the capacity of the source drive.
5. It is not recommended that you migrate or build an array on Windows dynamic disks (volumes) because it will result in data loss.

Warning: Do not interrupt the process when you create a RAID 0 using the Migrate option. If you do, you will not be able to restart the system, or to recover the data that was on the source drive.

Adding a Bootable Array

To make an array bootable:

1. From the Main menu, select Manage Arrays.
2. From the List of Arrays, select the array you want to make bootable, and press <Ctrl> and <B>.
3. Enter Y to create a bootable array when the following message is displayed: "This will make all other existing bootable array non-bootable. Do you want to make this array bootable? (Yes/No):" Then, a bootable array will be created. An asterisk () will appear next to the bootable array (as shown in the picture below:)



Deleting a Bootable Array

1. From the Main menu, select Manage Arrays.
2. From the List of Arrays, select the bootable array you want to delete, and press <Ctrl> and <B>. Note: a bootable array is the array marked with an asterisk (as shown in the picture above.)
3. When the following message is displayed: "The array is already marked bootable. Do you want to make this array as not bootable? (Yes/No)," Enter Y to delete a bootable array. The bootable array will be deleted and the asterisk will disappear.

Note: Do not use the delete key to delete the bootable array.

Adding/Deleting Hotspares

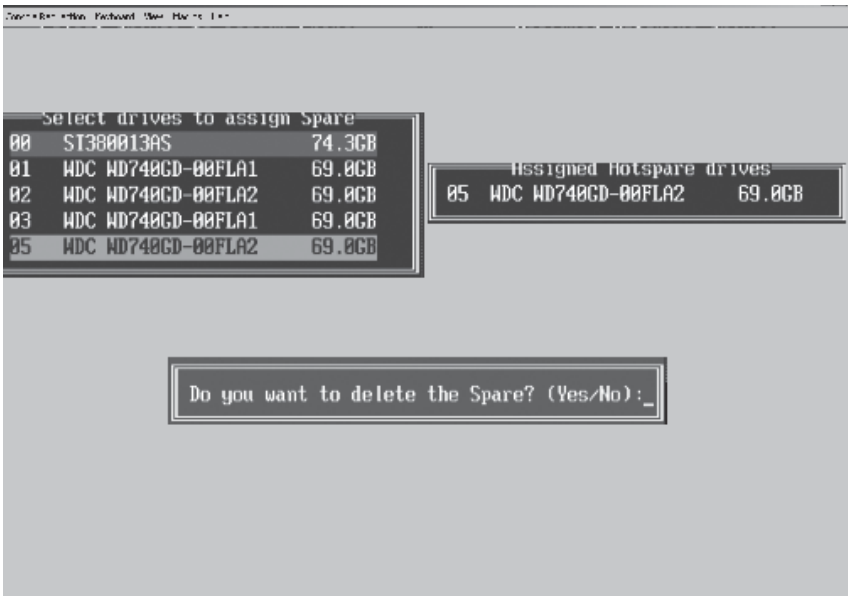
To add a Hotspare

Note: In order to rebuild a RAID (RAID 0 or RAID 1), you would need to add a new HDD as a hotspare.

1. From the main menu (shown on Page C-4), select Add/Delete Hotspares.
2. Use the up and down arrow keys to highlight and select the disk you want to designate as a hotspare, and press <Insert>, and then, press <Enter>.
3. Press Yes when the following prompt is displayed: "Do you want to create spare?" (Yes/No?)
4. The spare you have selected will appear in the Selected drives Menu.

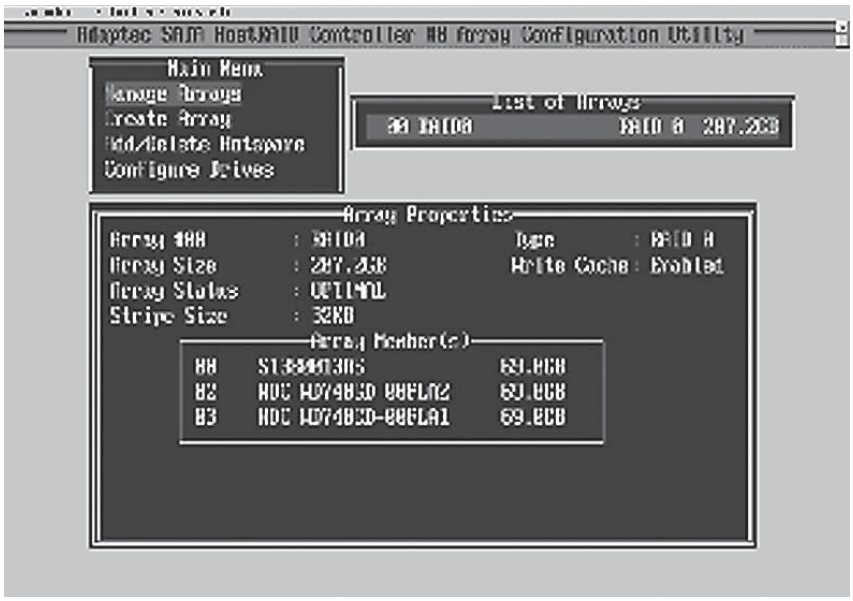
To delete a Hotspare

1. From the main menu (shown on Page C-4), select Add/Delete Hotspares.
2. Use the up and down arrow keys to highlight and select the Hotspare you want to delete, and press <delete>, and then, press <Enter>.
3. When the following warning is displayed: "Do you want to delete the hot spare?" (Yes/No?), press **Yes** to delete the hotspare you have selected.


Select drives to assign Spare
00 ST380013AS 74.3GB
01 WDC WD740GD-00FLA1 69.0GB
02 WDC WD740GD-00FLA2 69.0GB
03 WDC WD740GD-00FLA1 69.0GB
05 WDC WD740GD-00FLA2 69.0GB
Assigned Hotspare drives
05 WDC WD740GD-00FLA2 69.0GB
Do you want to delete the Spare? (Yes/No):_

Viewing Array Properties

1. From the main menu, select Manage Arrays and hit <Enter> (as shown on the previous page.)
2. From the List of Arrays dialog box (shown below), select the array you want to view and press Enter.
3. The Array Properties dialog box appears (as shown below), showing detailed information on the array. The physical disks associated with the array are displayed here.
4. Press <Esc> to return to the previous menu.



Rebuilding Arrays

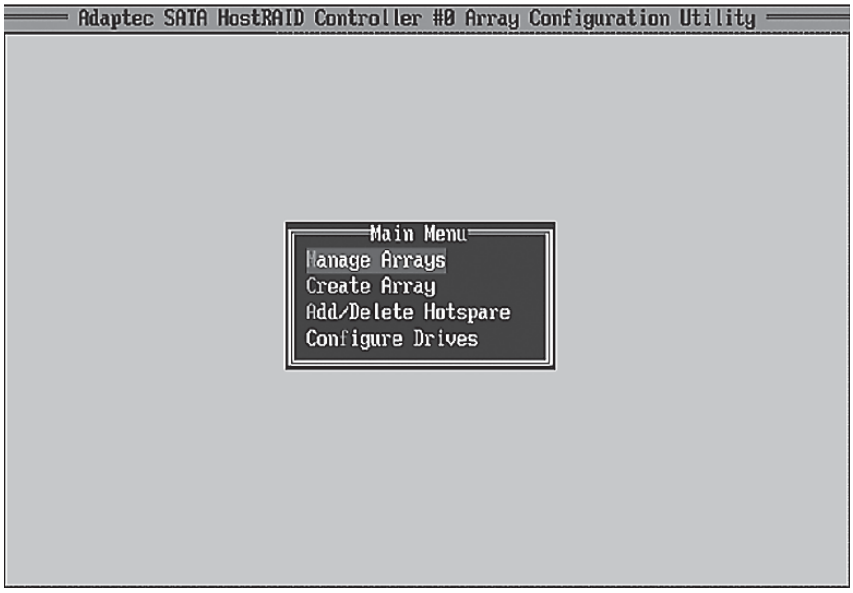
Note 1: Rebuilding applies to Fault Tolerant array (RAID 1) only.

If an array Build process is interrupted or when one critical member is missing, you must perform a Rebuild to restore its functionality. For a critical array rebuild operation, the optimal drive is the source drive.

Note 2: If no spare array exists and a hard disk drive fails, you need to create a spare before you can rebuild an array.

To Rebuild an array

1. From the Main Menu, select Manage Arrays (as shown in the screen below). From the List of Arrays, select the array you want to Rebuild.
2. Press <Ctrl> and <R> to Rebuild.



To Delete Existing Arrays

Warning*:* Back up the data on an array before you delete it to prevent data loss Deleted arrays cannot be restored.

1. From the main menu (shown on Page C-4), select Manage Arrays.

2. Select the array you wish to delete and press <delete>.

3. In the Array Properties dialog box, select Delete and press <Enter>. The following prompt is displayed:

Warning!! Deleting the array will render array unusable. Do you want to delete the array? (Yes/No):

RAID 1 only—the following prompt is also displayed:

Deleting the partition will result in data loss! Do you also want to delete the partition? (Yes/No):

4. Press Yes to delete the array and partition or No to return to the previous menu.

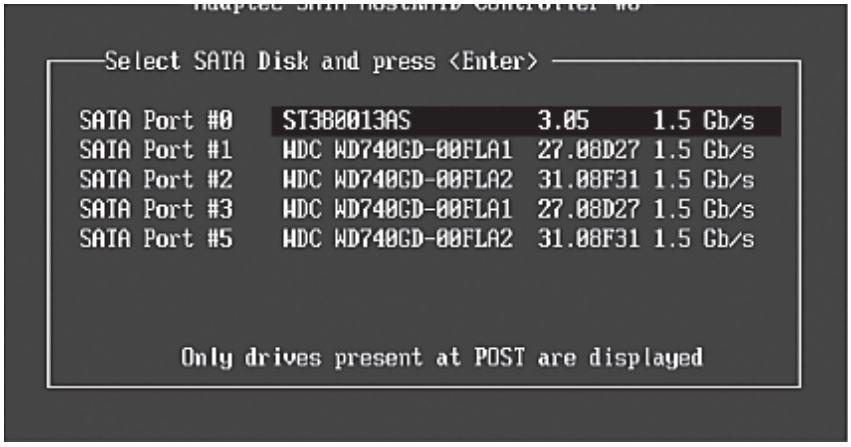
5. Press Esc to return to the previous menu.

Using the Disk Utilities

The Disk Utilities enable you to format or verify the media of your Serial ATA hard disks.

To access the disk utilities:

1. From the Adaptec RAID Configuration Utility Menu, select Disk Utilities (as shown above) and press <Enter>. The following screen appears.

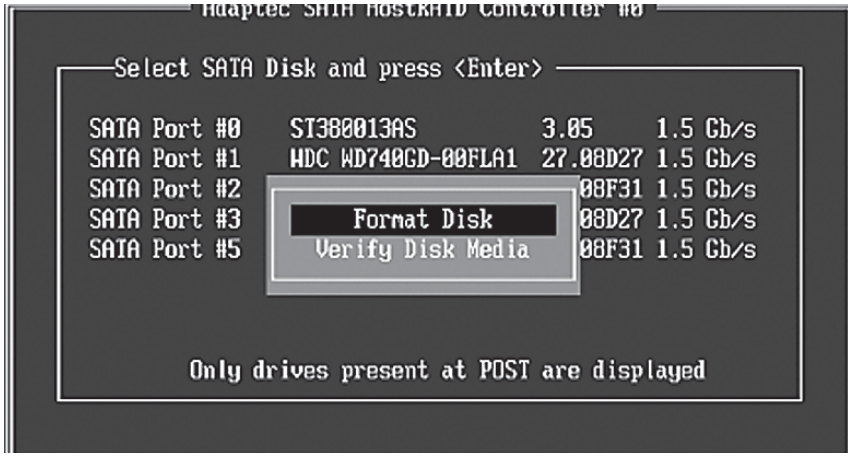

Select SATA Disk and press <Enter>
SATA Port #0 ST380013AS 3.05 1.5 Gb/s
SATA Port #1 WDC WD740GD-00FLA1 27.00D27 1.5 Gb/s
SATA Port #2 WDC WD740GD-00FLA2 31.00F31 1.5 Gb/s
SATA Port #3 WDC WD740GD-00FLA1 27.00D27 1.5 Gb/s
SATA Port #5 WDC WD740GD-00FLA2 31.00F31 1.5 Gb/s
Only drives present at POST are displayed

2. Select the desired disk and press <Enter>. The following screen appears:

To format a disk:

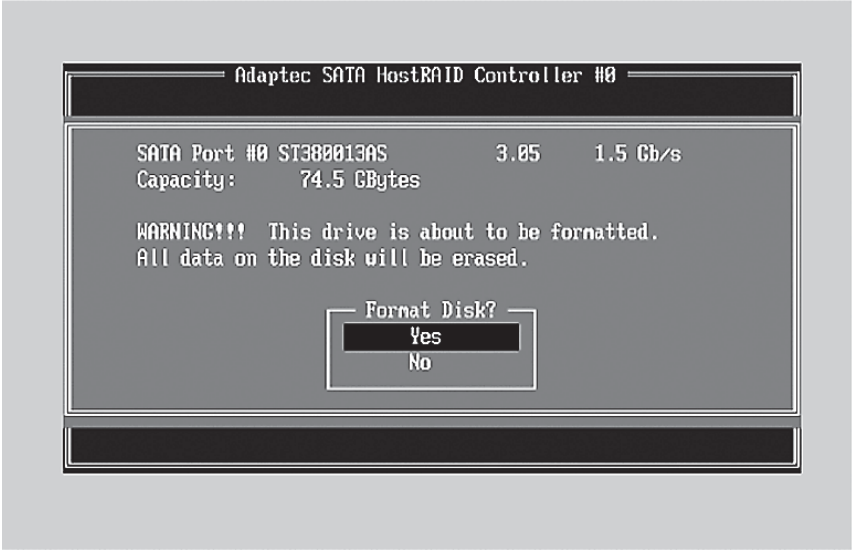
Note: The operation of Formatting Disk allows you to perform a low-level formatting of a hard drive by writing zeros to the entire disk. Serial ATA drives are low-level formatted at the factory and do not need to be low-level formatted again.

3 When the screen shown below displays, select Format Disk and press <Enter>. The following screen appears:

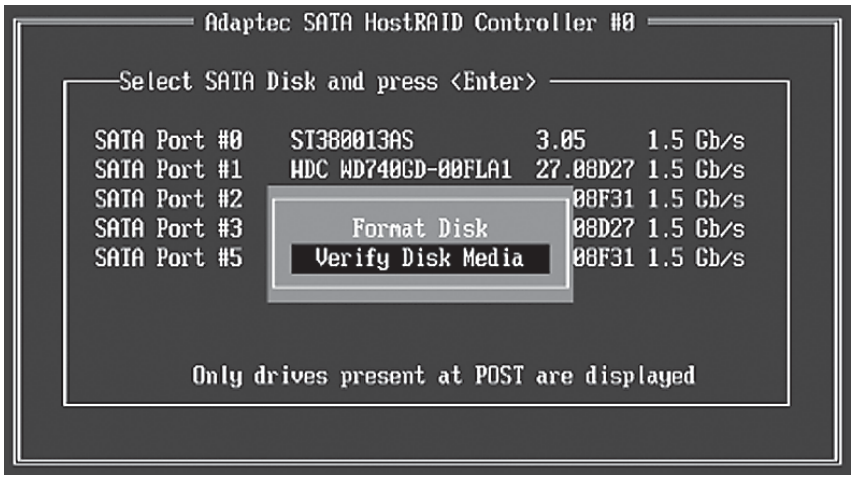

Adaptec SATA HostRAID Controller #0
Select SATA Disk and press <Enter>
SATA Port #0 ST380013AS 3.05 1.5 Gb/s
SATA Port #1 HDC WD740GD-00FLA1 27.00D27 1.5 Gb/s
SATA Port #2 00F31 1.5 Gb/s
SATA Port #3 00D27 1.5 Gb/s
SATA Port #5 00F31 1.5 Gb/s
Format Disk
Verify Disk Media
Only drives present at POST are displayed

4. Read the warning message when it appears in the screen as shown below. To continue with disk formatting, select Yes and hit <Enter>. Otherwise, select No and press <Enter>.

Caution: Formatting a disk destroys all data on the drive. Be sure to back up your data before formatting a disk.

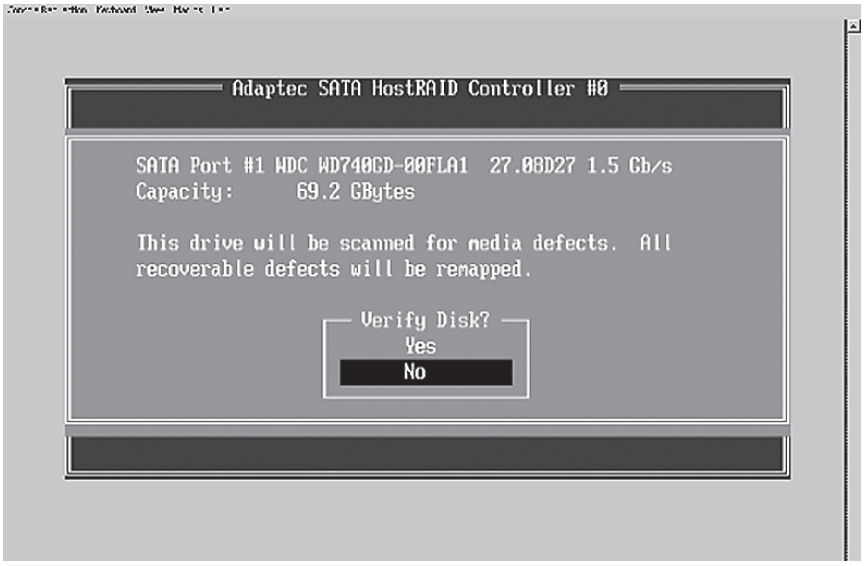

Adaptec SATA HostRAID Controller #0
SATA Port #0 ST380013AS 3.05 1.5 Gb/s
Capacity: 74.5 GBytes
WARNING!!! This drive is about to be formatted.
All data on the disk will be erased.
Format Disk?
Yes
No

To verify disk media:


Adaptec SATA HostRAID Controller #0
Select SATA Disk and press <Enter>
SATA Port #0 ST380013AS 3.05 1.5 Gb/s
SATA Port #1 WDC WD740GD-00FLA1 27.08D27 1.5 Gb/s
SATA Port #2 08F31 1.5 Gb/s
SATA Port #3 08D27 1.5 Gb/s
SATA Port #5 08F31 1.5 Gb/s
Format Disk
Verify Disk Media
Only drives present at POST are displayed

3 When the screen shown above displays, select Verify Disk Media and press <Enter>.

4. A message will display, indicating that the selected drive will be scanned for media defects. Select Yes and hit <Enter> to proceed with disk verifying; otherwise, select No and hit <Enter>.


Adaptec SATA HostRAID Controller #0
SATA Port #1 WDC WD740GD-00FLA1 27.08D27 1.5 Gb/s
Capacity: 69.2 GBytes
This drive will be scanned for media defects. All recoverable defects will be remapped.
Verify Disk?
Yes
No

To Exit Adaptec RAID Configuration Utility

1. Once you have completed RAID array configurations, press ESC to exit. The following screen will appear.

2. Press Yes to exit the Utility.

C-2 Installation Intel's ESB2 Driver by Adaptec and the Operation System

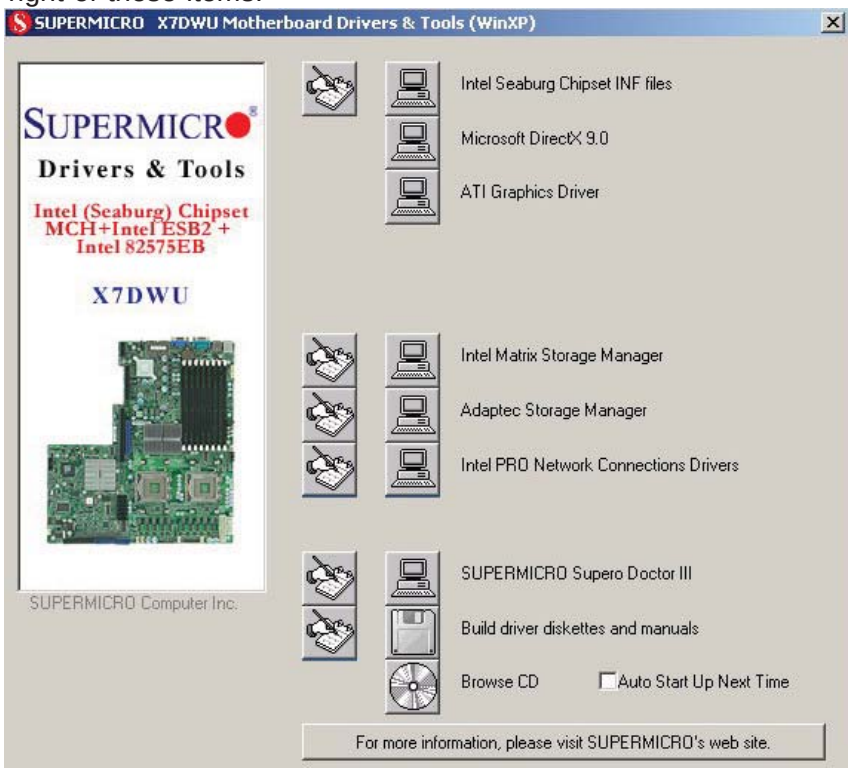
1. Insert Supermicro's bootable CD that came with the package into the CD Drive during the system reboot, and the screen: "Supermicro Driver Diskette Maker" will appear.
2. Choose from the list the item: "Intel ESB2 Driver by 3rd Party (Adaptec)" and press <ENTER>.
3. From the next screen displayed, choose the OS driver you want to install and press <Enter>.
4. Insert a formatted diskette into drive A: and press <Enter> as prompted.
5. Exit the program after the process is completed. Then, reboot the system.
6. Insert the Microsoft Windows OS Setup CD in the CD Driver, and the system will start to boot up from CD.
7. Press the <F6> key when the message-"Press F6 if you need to install a third party SCSI or RAID driver" displays.
8. When the Windows OS Setup screen appears, press "S" to specify additional device(s).
9. Insert the driver diskette-"Adaptec Embedded Serial ATA Raid Controller Driver" into Drive A: and press the <Enter> key.
10. Choose the Adaptec Embedded Host Serial ATA Raid Controller from the list indicated in the Windows OS Setup Screen, and press the <Enter> key.
11. Press the <Enter> key to continue the installation process. (If you need to specify any additional devices to be installed, do it at this time.) Once all devices are specified, press the <Enter> key to continue with the installation.
12. From the Windows OS Setup screen, press <Enter>. The OS Setup will automatically load all device files, and, then, continue with the Windows OS installation.
13. After Windows OS Installation is completed, the system will automatically reboot.

Appendix D

Installing Other Software and Drivers

D-1 Installing Other Drivers

After you've installed the Windows Operating System, a screen as shown below will appear. You are ready to install software programs and drivers that have not yet been installed. To install these software programs and drivers, click the icons to the right of these items.



Driver/Tool Installation Display Screen

Notes:

1. Click the icons showing a hand writing on the paper to view the readme files for each item. Click on a computer icon to the right of an item to install an item (from top to the bottom) one at a time. After installing each item, you must reboot the system before proceeding with the next item on the list. The bottom icon with a CD on it allows you to view the entire contents of the CD.

2. When making a storage driver diskette by booting into a Driver CD, please set the SATA Configuration to "Compatible Mode" and configure SATA as IDE in the BIOS Setup. After making the driver diskette, be sure to change the SATA settings back to your original settings.

D-2 Configuring Supero Doctor III

The Supero Doctor III program is a web-base management tool that supports remote management capability. It includes Remote and Local Management tools. The local management is called the SD III Client. The Supero Doctor III program included on the CDROM that came with your motherboard allows you to monitor the environment and operations of your system. Supero Doctor III displays crucial system information such as CPU temperature, system voltages and fan status. See the Figure below for a display of the Supero Doctor III interface.

Notes:

1. The default user name and password are ADMIN.

2. In the Windows OS environment, the Supero Doctor III settings take precedence over the BIOS settings. When first installed, Supero Doctor III adopts the temperature threshold settings previously set in the BIOS. Any subsequent changes to these thresholds must be made within Supero Doctor, since the SD III settings override the BIOS settings. For the Windows OS to adopt the BIOS temperature threshold settings, please change the SDIII settings to be the same as those set in the BIOS.

Supero Doctor III Interface Display Screen-I (Health Information)

Supero Doctor III Interface Display Screen-II (Remote Control)

Super Doctor III
Remote Management
SUPERMICR
ADMIN
System Info. | Health Info. | Performance | Remote Control | Configuration | Administration | Systems Management | Report | Help
Remote Control
Graceful Power Control
Open Console
Power Control
Enter
Graceful power control
Supero Doctor III allows a user to inform the OS to reboot or shut down within a specified time (the default is 30 seconds). Before the system reboots or shuts down, it's allowed to cancel the action.
Requirements
Keep Supero SD3Service Daemon running at all times on this system.
Provide TCP/IP connectivity.
Power control

Note: SD III Software Revision 1.0 can be downloaded from our Web site at: ftp://ftp.supermicro.com/utility/Supero_Doctor_III/. You can also download SDIII User's Guide at: http://www.supermicro.com/PRODUCT/Manuals/SDIII/User-Guide.pdf. For Linux, we will still recommend that you use Supero Doctor II.

Notes

(Disclaimer Continued)

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